2021 Annual Monitoring Report

Petersen Ranch Mitigation Bank

Leona Valley, Los Angeles County, California
USACE File No. SPL-2012-00669-BEM
CDFW Tracking No. 1798-2013-04-R5
RWQCB File No. 15-052

Prepared for:
Interagency Review Team

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WRA #21065
November 2021

ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS

AA	CRAM Assessment Area
ANF	Angeles National Forest
Bank	Petersen Ranch Mitigation Bank
BEI	Bank Enabling Instrument
Cal-IPC	California Invasive Plant Council
CDEC	California Data Exchange Network
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIMIS	California Irrigation Management Irrigation System
CRAM	California Rapid Assessment Method
CWMW	California Wetland Monitoring Workgroup
EC	Easement Compliance
EL	Elizabeth Lake
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
IMP	Interim Management Plan
IRT	Interagency Review Team
LTM	Long-Term Management
NL	Not Listed
NOAA NCEI	National Oceanic and Atmospheric Administration National Centers for Environmental Information
OBL	Obligate
OHWM	Ordinary High-Water Mark
OHV	Off-highway Vehicle
PR	Petersen Ranch
RDM	Residual Dry Matter
RWQCB	Regional Water Quality Control Board
SCE	Southern California Edison
UPS	Uniform Performance Standards
USACE	U.S. Army Corps of Engineers
USGS	United States Geologic Survey

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EXECUTIVE SUMMARY

This is the sixth annual report for the Petersen Ranch Mitigation Bank (Bank) as required under the terms of the Bank Enabling Instrument (BEI; WRA 2016a). This report covers the Reporting Period from November 1, 2020 through October 31, 2021. Restoration construction activities for Area A were completed in March 2017, while restoration activities for Area E were completed in 2016; thus, this report assesses the Year 4 Performance Standards for Area A and the Year 5 Performance Standards for Area E.

Ex. 4 CBI

Ex. 4 CBI

Figure E1: Total Annual Precipitation, 2015-2021, and 30-Year Normals
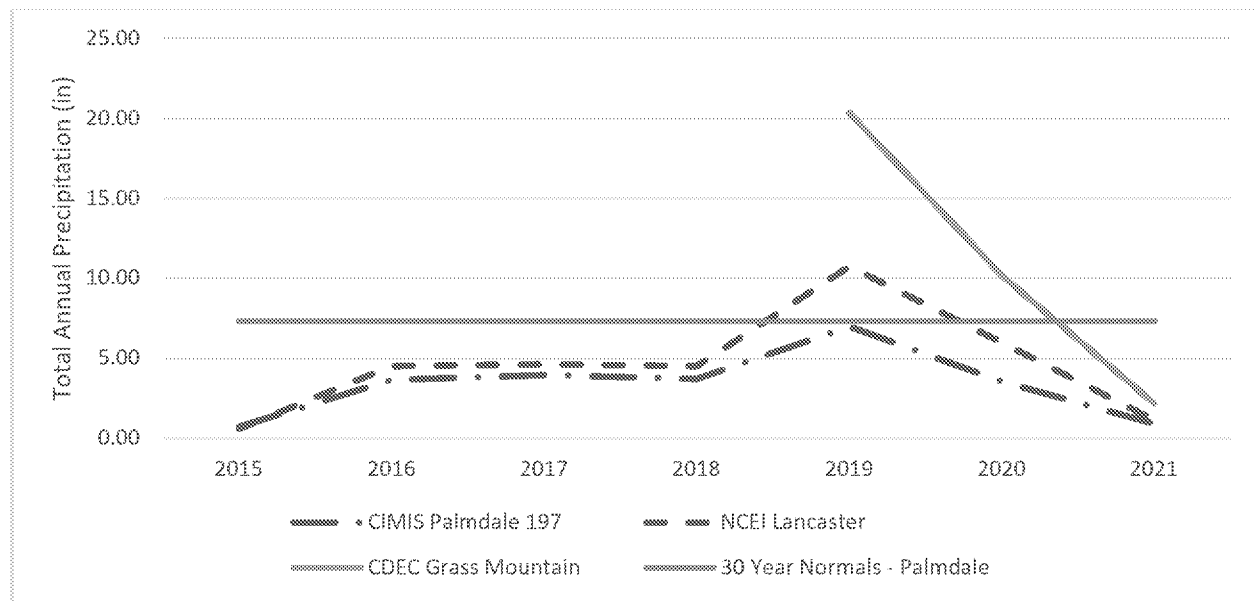
Notes:

CDEC Grass Mountain data collection began in October 2018. Data is therefore not available from this station between 2015-2017, and the 2018 dataset is incomplete so not included here.

2021 data shown is through October 31, 2021, except for CDEC Grass Mountain, which ends on October 18, 2021

1.0 PROJECT OVERVIEW

This report is the sixth annual report for the Petersen Ranch Mitigation Bank (Bank) as required under the terms of the Bank Enabling Instrument (BEI; WRA 2016a). The BEI requires annual reports be submitted to the Interagency Review Team (IRT) by November 15 of each year following Bank Establishment, while the Development Plan requires that the first report is submitted following completion of the development activities. Only Areas A and E of the Bank have been implemented. As such, this report includes information on the site conditions, development activities, performance monitoring, and credit sales in 2021 for Area A and E only. This report covers the Reporting Period from November 1, 2020 through October 31, 2021. Restoration construction activities for Area A were completed in March 2017, while restoration activities for Area E were completed in 2016; thus, this report assesses the Year 4 Performance Standards for Area A and the Year 5 Performance Standards for Area E.

1.1 Background

The Bank consists of two Bank Properties near Leona Valley, Los Angeles, California: the Petersen Ranch Bank Property, located to the north of Elizabeth Lake Road and encompassing portions of Portal Ridge and the San Andreas Fault Rift Zone (Figure 1) and the Elizabeth Lake (EL) Bank Property, located to the south of Elizabeth Lake Road and encompassing a portion of Elizabeth Lake (Figure 2). The Bank Properties are approximately 4,103 acres; the Petersen Ranch (PR) Bank Property consists of approximately 3,789 acres located in the Del Sur United States Geologic Survey (USGS) 7.5-minute quadrangle, and the Elizabeth Lake Bank Property consists of approximately 314 acres located in the Lake Hughes USGS 7.5-minute quadrangle. The Bank Properties are near the northern boundary of the Angeles National Forest (ANF), west of the City of Palmdale and south of Antelope Valley (Figure 3).

The Bank is further broken down into separate areas that are being implemented in phases: Phase 1 consists of Area A on the Petersen Ranch Bank Property and Area E on the Elizabeth Lake Bank Property. Only Phase 1 has been implemented, meaning that only Areas A and E have been recorded under a conservation easement and are undergoing restoration activities described in Parts II and VI of the Development Plan, respectively.

Area A is located within the southwestern portion of the Petersen Ranch Bank Property and contains two restoration sites, the Rift Valley Restoration Site and the Petersen Stream Restoration Site. This area supports many important ecological features including ephemeral stream, wetland, wetland riparian, non-wetland riparian, freshwater marsh, open water, alluvial floodplain, and California Environmental Quality Act (CEQA)-sensitive and Swainson's hawk (*Buteo swainsoni*) foraging habitat. In addition to the two restoration sites, enhancement actions are occurring in Area A through cattle exclusion surrounding select wetland habitat. A 320-acre portion of Area A has been used previously as mitigation for Southern California Edison (SCE) and has a separate conservation easement. This SCE easement is being managed as part of the Bank. The SCE easement monitoring is described in a separate monitoring report.

Area E consists of the western portion of the Elizabeth Lake Bank Property and is approximately 160 acres. Area E includes the Munz Canyon Restoration Site. This area supports alluvial floodplain, ephemeral stream, wetland riparian, non-wetland riparian, and open water habitats. Enhancement actions have occurred in Area E through cattle exclusion from wetland areas and post-fire weed control.

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Petersen Ranch
Mitigation Bank

Los Angeles County,
California

Figure 1

Petersen Ranch
Bank Property Map

Area B

Area A

Area A

Area C

Area D

Legend:
- Property Boundary (3,911.9 acres)
- SCE Boundary (319.9 acres)
- Not a Part (123.01 acres)
- Bank Property Boundary (3,788.9 acres)
- Area A (1,386.1 acres)
- Area B (512.1 acres)
- Area C (657.6 acres)
- Area D (1,233.1 acres)

0   2,000   4,000
Feet

SCALE 1:24 000

Map Date: June 2015
Map By: Chris Zumwalt
Base Source: USGS 7.5 min. quad

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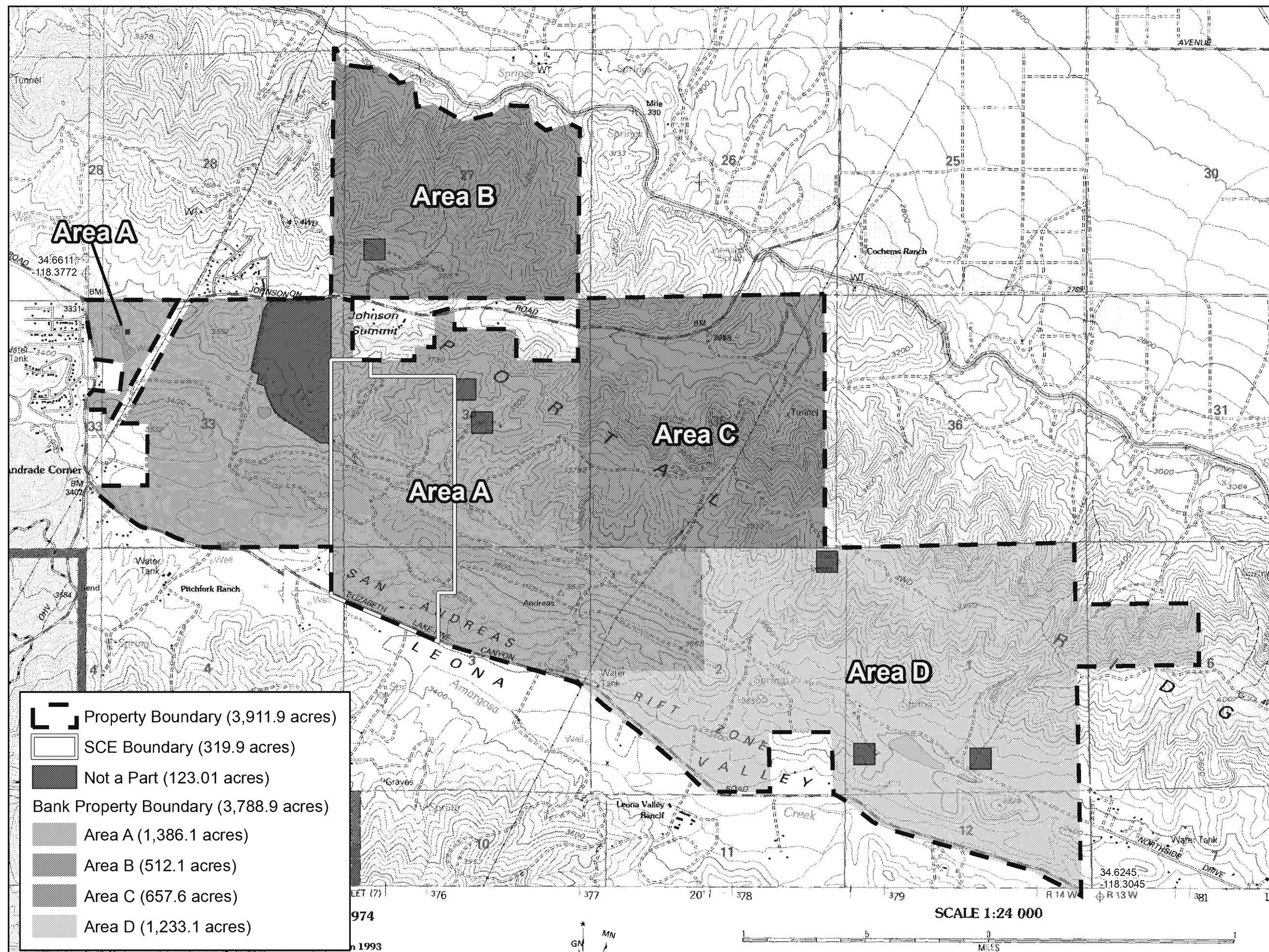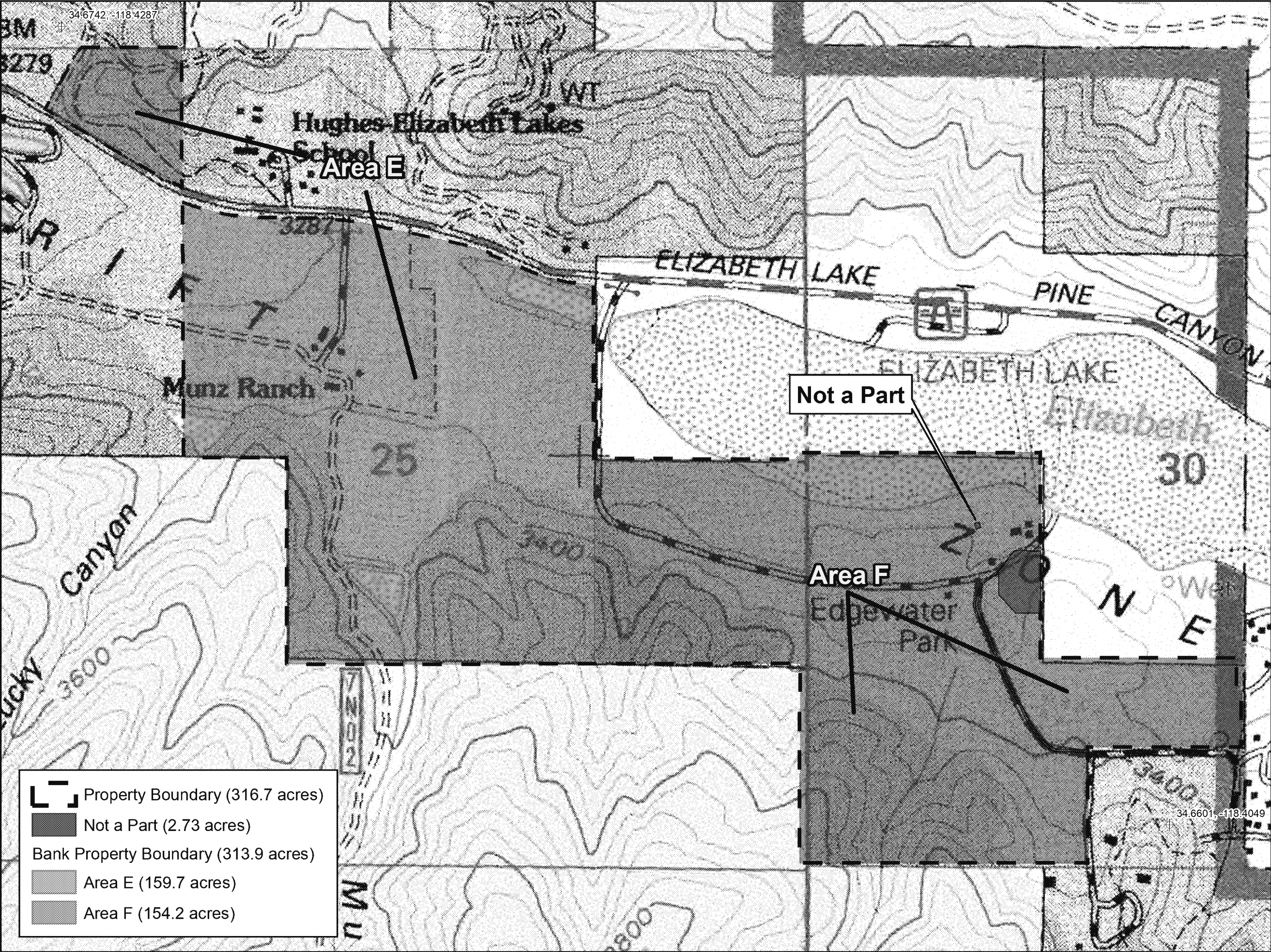
Petersen Ranch
Mitigation Bank

Los Angeles County,
California

Figure 2

Elizabeth Lake
Bank Property Map

Area E

Not a Part

Area F

Property Boundary (316.7 acres)

Not a Part (2.73 acres)

Bank Property Boundary (313.9 acres)

Area E (159.7 acres)

Area F (154.2 acres)

0   600   1,200
Feet

Map Date: June 2015
Map By: Chris Zumwalt
Base Source: USGS 7.5 min. quad

Detail Area

Bakersfield · Kern

ANTELOPE VALLEY
Lancaster · Palmdale
Santa Clarit
Ventura
Thousand · Oaks · Simi Valley
Oxnard · Los Angeles
Santa Monica · El Monte · Pomona
Anaheim
Long Beach
Santa A · Orange

Rosamond

Lancaster

Palmdale

Elizabeth Lake Bank Property

Petersen Ranch Bank Property
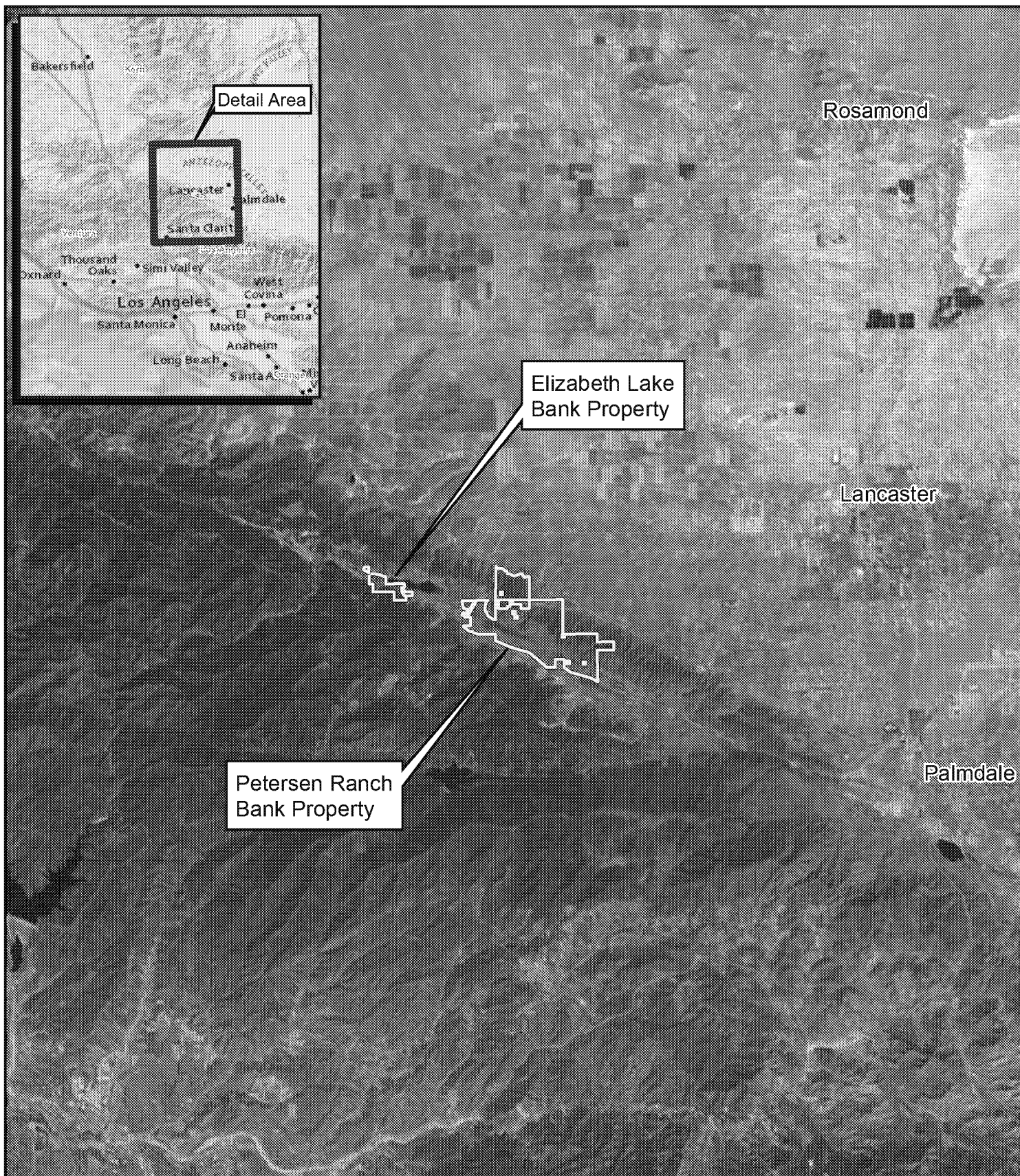
Figure 3. Location Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

W · E
N · S

0 — 3.5 — 7
Miles

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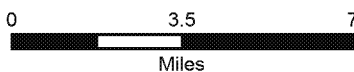
Map Date: June 2015
Map By: Chris Zumwalt
Base Source: ESRI Microsoft 5/8/2010

Path: L:\Acad 2000 Files\21000\21065\gis 2015\ArcMap\BEI Final\Exhibit A\Exhibit A-1 Location.mxd

1.2 Monitoring and Reporting Tasks

This report describes the monitoring and reporting requirements outlined in the BEI and Development Plan for Areas A and E. This includes a description of the performance standards; the management and maintenance tasks completed this year; a description of the overall condition of the site and the status of development activities; and credit sales and status of the endowment.

1.3 Status Summary

Habitat restoration and enhancement activities were completed as of October 14, 2016 for Elizabeth Lake Area E and as of March 8, 2017 for Petersen Ranch Area A. Details of these activities have been described in the as-built letters sent to the IRT dated March 23, 2017 and December 5, 2016 and shown in Figure 4 and Figure 5 for Areas A and E respectively. In spring of 2017, Year 1 performance standards were not assessed in Area A because the site had not been allowed to establish for an entire growing season. Therefore, 2017 marked the first year of performance monitoring for Area E and 2018 marked the first year of performance monitoring for Area A. This year (2021) marks the fourth year of performance monitoring for Area A and the fifth year of monitoring for Area E. Both Areas A and E are now in the interim management period. The interim management period continues until the performance standards have been met and the third anniversary of the full funding of the Endowment has occurred. So far, performance standards have been met through Year 3 for Area E and Year 3 for Area A. Two more deposits are needed for both Area A and Area E for their Endowments to be fully funded.

1.4 Permit File Numbers

- U.S. Army Corps of Engineers Section 404 (File No. SPL-2012-00669-BEM)
- Los Angeles Regional Water Quality Control Board Section 401 Water Quality Certification (File No. 15-052)
- California Department of Fish and Wildlife (CDFW)Section 1602 Streambed Alteration Agreement (Tracking No. 1600-2015-0075-R5)

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Petersen Ranch
Mitigation Bank

Los Angeles County,
California

Figure 4.

Area A - Location
of the Restoration
Sites in Area A

Legend:

- Bank Property Boundary
- Restoration Site
- Cattle Exclusion Fence
- ⊕ Location Point

0   1,000   2,000
Feet
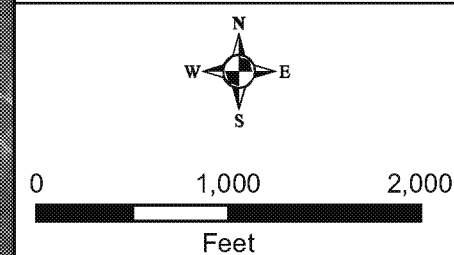
Map Date: 12/4/2017
Map By: Chris Zumwalt
Base Source: NAIP 2016

Labels on map:
- Lower Pond — 34.6579, -118.3765
- 34.657, -118.3743
- Upper Pond
- Pond A — 34.6557, -118.3717
- Pond B — 34.655, -118.367
- 34.6554, -118.3694
- Petersen Stream Restoration Site
- Pond C — 34.6528, -118.3644
- 34.65063, -118.3668
- Pond D
- Wetland Restoration Site
- 34.6502, -118.3591
- 34.6495, -118.3566
- 34.6494, -118.3548
- Pond F — 34.6471, -118.3503
- Pond E
- 34.64748, -118.3748
- 34.6444, -118.3427
- 34.64177, -118.3506
- Pond G
- 34.64035, -118.3458
- 34.63871, -118.3447
- 34.63812, -118.341
- 34.63612, -118.3366

Path: L:\Acad 2000 Files\21000\21065\gis 2015\ArcMap\Annual Report\2017\Figure 3 Area A Restoration Sites Peterson Ranch Property.mxd

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Petersen Ranch
Mitigation Bank

Los Angeles County,
California

Figure 5.

Area E - Restoration
and Monitoring Sites
for Area E

Legend

- Bank Property Boundary
- ○ Photo-Point
- CRAM Monitoring Location
- Restoration Site

Transect Type
- ── Preservation area
- ── Restoration area
- ── Enhancement area
- ⋯ Reference Transect
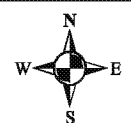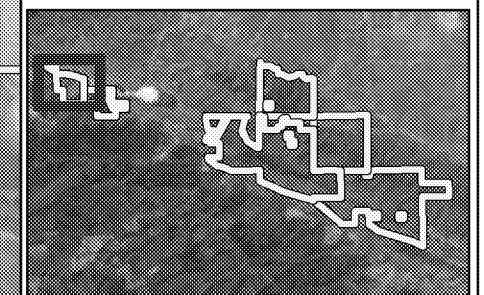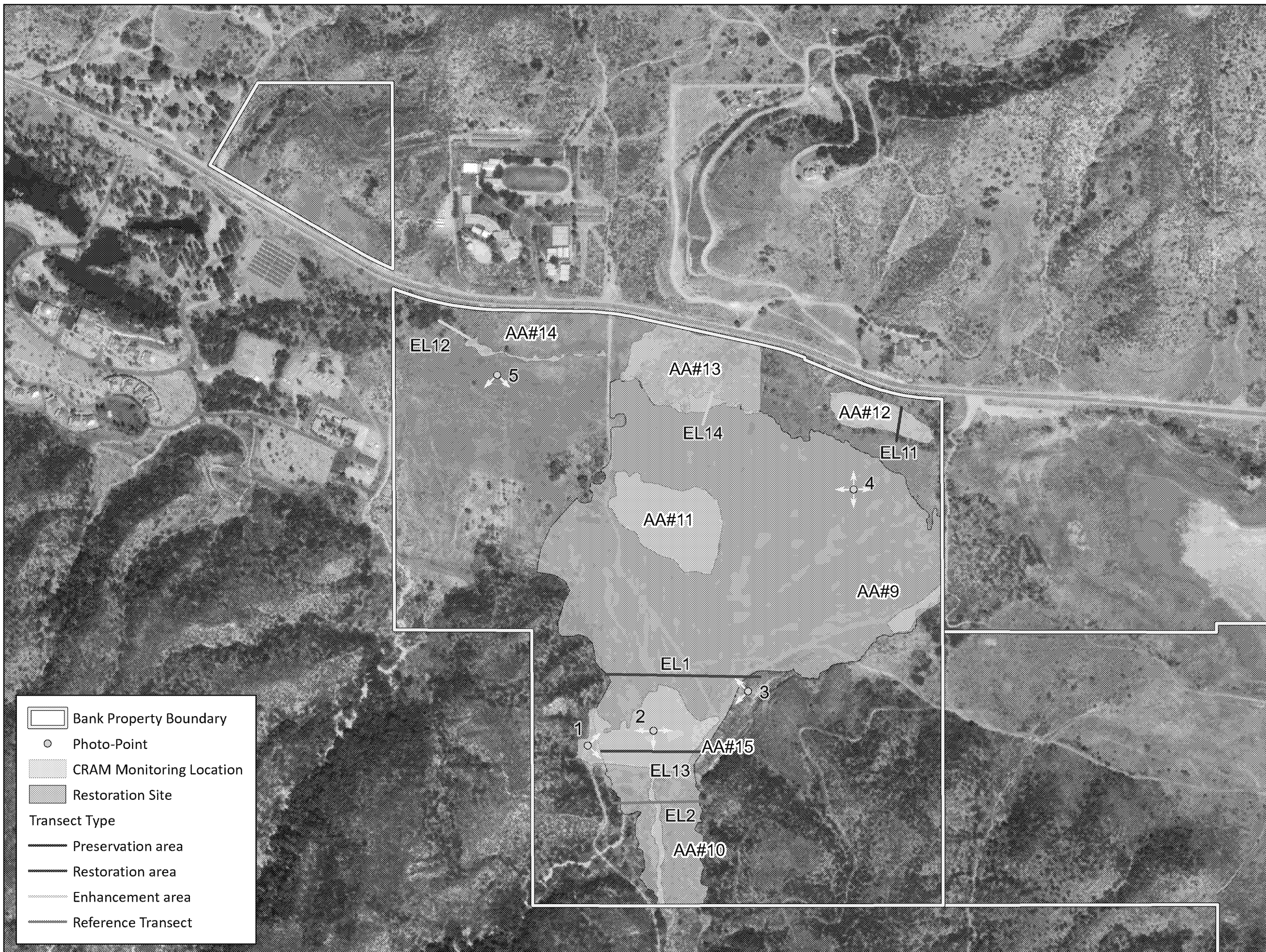
0   450   900
Feet

Map Date: July 2015
Map By: Chris Zumwalt
Base Source: ESRI Streaming 5/8/2010

Path: L:\Acad 2000 Files\21000\21065\gis 2015\ArcMap\Annual Report\2017\Figure 6 Area E Monitoring Locations Elizabeth Lake Property.mxd

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2.0 METHODS

This section details the annual performance standards methodology for the performance monitoring period at both Area A and Area E. Reference sites used for evaluation of performance standards will be monitored using the same sampling methodology that is used for the restored and enhanced habitats.

The performance of mitigation activities for 404 and Porter-Cologne credits will be monitored using the California Rapid Assessment Method (CRAM) and the U.S. Army Corps of Engineers (USACE) South Pacific Division's Uniform Performance Standards (UPS) to quantitatively assess the habitats' progress towards achieving the target scores identified in the CRAM report prepared by VCS Environmental (VCS 2014). CRAM will be conducted within the same assessment areas (AAs) for the Year 3, Year 4, and Year 5 performance standards.

Due to limitations in the way CRAM is scored, there is the potential for measurable improvements in the restored habitats to not be adequately reflected in the CRAM scores. To ensure changes in enhanced habitats are captured, and measured, UPS have been established for each CRAM metric. Mitigation actions will be considered as meeting their performance standards for the USACE and Lahontan Regional Water Quality Control Board (RWQCB) when they have met both the UPS and the target CRAM scores. If the Target CRAM score is not met for any metric during years 3, 4, and 5, the UPS may be used by the USACE/Lahontan RWQCB to determine if and to what degree the restored habitats are meeting the pre-Final performance standards. Likewise, if the UPS is not met, the Target CRAM may be used. In such an event, the USACE would also make a case-by-case determination if full, partial, or no release of credits would be warranted. The Final Performance Standard will not be met until the target CRAM score has been achieved.

For 1600 and CEQA credits, performance of the mitigation activities will be based solely on meeting the UPS. The methods used for measuring UPS are discussed in the following sections.

California Endangered Species Act (CESA) credits are not assessed for performance.

2.1 California Rapid Assessment Method

CRAM assessments follow the approved methodology outlined in the CRAM field books (i.e., CRAM modules) developed by the California Wetland Monitoring Workgroup (CWMW). The established CRAM AAs were assessed using the same CRAM modules that were used during the baseline assessments in 2014 (VCS 2014). CRAM attribute and metric scores have inherent variability due to both natural variation between wetlands and differences in practitioner interpretation. This variability is accounted for during score interpretation by using the 90% confidence intervals outlined in the CRAM Data Quality Assurance Plan and CRAM Technical Bulletin (CWMW 2018, CWMW 2019). Each of the four attribute scores and the overall CRAM score utilize confidence intervals during score interpretation to determine if scores are truly different from one another, or if the difference in score is due to natural variability. The 90% confidence intervals are as follows: Index Score is 7 points, Buffer and Landscape Context is 4 points, Hydrology is 10 points, Physical Structure is 17 points, and Biotic Structure is 11 points (see Table 2 in CMWM 2019). In practice, this means that two Index scores would need to be at least 7 points apart to be 90% confident that one score is higher than the other (CWMW 2019). Instances where scores fall short of performance standards, but within the 90% confidence intervals will be highlighted in the discussion of those attribute scores. Table 1 summarizes the CRAM modules used to assess the Bank's CRAM AAs.

Table 1. CRAM Modules Used at Monitoring AAs

AA Site ID	CRAM Module Used
AREA E ENHANCEMENT	
EL AA 12	Depressional[1]
EL AA 14	Riverine[2]
AREA E MUNZ CANYON RESTORATION SITE	
EL AA 11	Depressional[1]
EL AA 15	Riverine[2]
AREA A ENHANCEMENT	
PR AA 11	Riverine[2]
AREA A PETERSEN STREAM RESTORATION SITE	
PR AA 1	Riverine[2]
AREA A RIFT VALLEY RESTORATION	
PR AAs 3, 4, 7, 8, 10, 12, 15 & 16	Depressional[1]

[1]CWMW 2013a
[2]CWMW 2013b

2.2 Uniform Performance Standards

2.2.1 Physical and Hydrologic Monitoring

Structural Patch Types

Physical structure was monitored in the Rift Valley Restoration Site wetlands using the structural patch type checklist in the CRAM Depressional Wetland Field Book (CWMW 2013a). In total, four reference AAs (PR AAs 2, 13, 14, and 17) and eight restoration AAs (PR AAs 3, 4, 7, 8, 10, 12, 15, and 16) were assessed using the checklist and locations of the AAs are presented in Figure 6. Reference site AA totals were averaged and compared to the average of the restoration site AAs (UPS #20).

Figure 6.

Area A - Monitoring Locations for Area A

Petersen Ranch Mitigation Bank

Los Angeles County, California

Legend:
- Bank Property Boundary
- CRAM Monitoring Location
- Photo-Point
- Groundwater Monitoring Locations

Transect Type
- Performance
- Reference
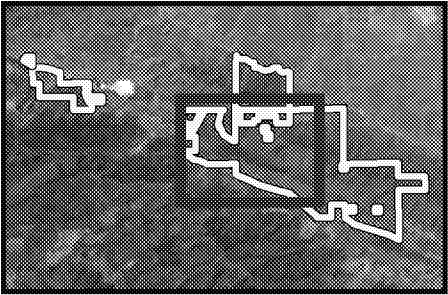
Map Date: October 2021
Map By: Chris Zumwalt
Base Source: ESRI Streaming

Path: L:\Acad 2000 Files\21000\21065\2020ArcMap\GIS\ArcMap\2020 Annual Report\Figure 6 Area A Monitoring Locations Peterson Ranch Property.mxd

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Well Monitoring

Hydrology was monitored in the Rift Valley Restoration Site wetlands through the use of automatic data loggers installed in shallow groundwater monitoring wells (UPS #23). Groundwater wells were located along wetland restoration and wetland reference transects and installed between 3.9 and 4.2 feet in depth. Data loggers deployed in each well recorded the depth and duration of inundation at each well location. One onsite barologger, installed at transect PR08, recorded air pressure to facilitate data correction. Manual observations to validate data were periodically made throughout the monitoring season.

Ordinary High-Water Mark Indicators and Channel Formation

Hydrology and sediment transport in the Area A Petersen Stream Restoration Site and the Area E Munz Canyon Restoration Site were monitored through direct observation of Ordinary High-Water Mark (OHWM) indicators along transect EL1 in Area E and transect PR2 in Area A (custom hydrologic UPS) depicted in Figure 8 and Figure 9. Permanent transects are located across the full width of the monitored resource, perpendicular to flow. Cross sections of the resource were sketched and the location of hydrogeomorphic floodplain units was identified following the procedures outlined in the Updated Datasheet for the Identification of the OHWM in the Arid West Region of the Western United States (Curtis and Lichvar 2010). Cross sections will indicate multi-thread or single thread channel formation (UPS #2). For each hydrogeomorphic floodplain unit any observed OHWM indicators were identified.

In March 2021, on-the-ground site assessments and automated drone aircraft were utilized to monitor hydrology and sediment transport within the alluvial floodplain and stream restoration sites. Drone data were cross-referenced with the on-the-ground site assessment, and good overlap was found between the two data sources. These data were then compared to 2017, 2018, 2019, and 2020 drone imagery to assess changes in site hydrology over time.

Precipitation was tracked at four weather stations from November 1, 2020 to October 31, 2021. Daily precipitation totals from each station were compared to the modeled 24-hour storm return frequencies (2-year, 5-year, 10-year storm events) used as the basis for restoration planning at both the Area A Petersen Stream Restoration Site and Area E Munz Canyon Restoration Site. The 24-hour precipitation totals associated with these return frequencies are:

- 2-Year: 3.4 inches
- 5-Year: 5.1 inches
- 10-Year: 6.3 inches (VA Consulting 2014)

Weather stations used for this analysis are listed in Table 2 and are mapped relative to the Bank Property in Figure 7.

Table 2: Daily Precipitation Data Sources

DATA SOURCE	STATION	COORDINATES	ELEVATION (FT)*
California Irrigation Management Irrigation System (CIMIS)	Station 197 – Palmdale	34.615, -118.032	2,550
National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI)	GHCND:USW00003159 Lancaster, CA	34.741, -118.212	2,338
	GHCND:USC00048014 Saugus Power Plant 1, CA	34.590, -118.454	2,161
California Data Exchange Network (CDEC)	GMT – Grass Mountain	34.641, -118.414	4,626

* Elevations within the Petersen Ranch Bank Property range from approximately 3,250 to 3,975 feet; elevations within the Elizabeth Lake Bank Property range from approximately 3,270 to 3,700 feet.

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Petersen Ranch
Mitigation Bank

Los Angeles County,
California

Figure 7:
Daily Precipitation
Data Weather
Stations

NCEI
Lancaster,
CA US

CDEC Grass
Mountain

CIMIS
Palmdale
197

NCEI Saugus
Power Plant
1, CA US

☐ Petersen Ranch Bank Boundary
★ Precipitation Stations

0   2   4
Miles
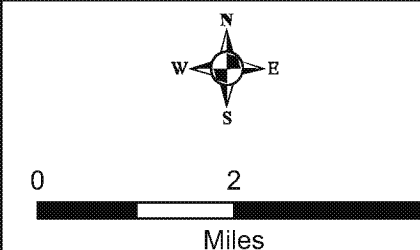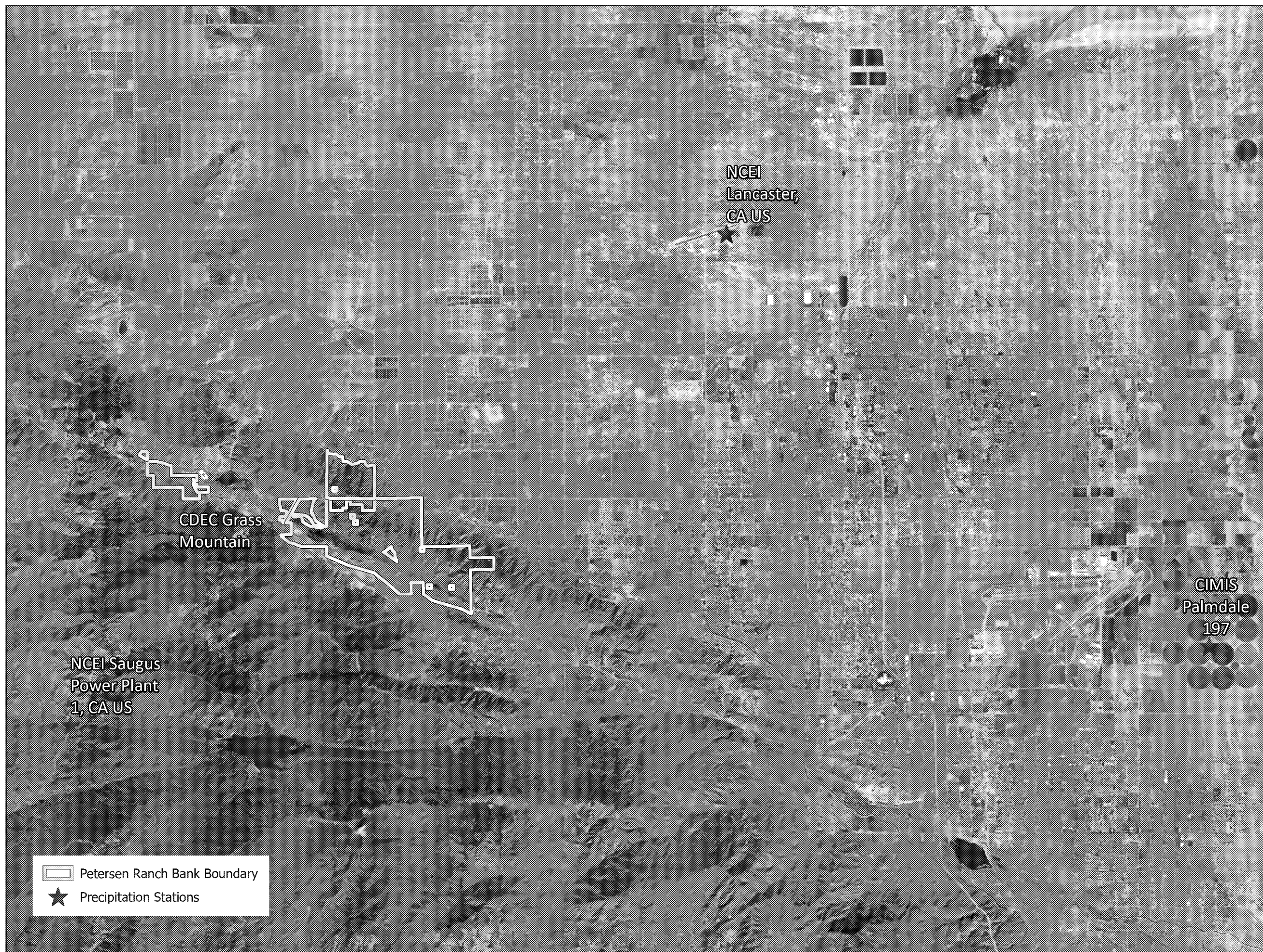
Map Date: November 2021
Map By: NJander
Base Source: ESRI World Imagery

Path: L:\Acad 2000 Files\21000\21065\2021ArcMap\GIS\ArcMap\Elizabeth Lake delineation cumulative20211102\Elizabeth Lake delineation cumulative20211102.aprx

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2.2.2 Biological Monitoring

Vegetation monitoring in the restoration and enhancement areas was conducted utilizing permanent transects. In total, there are 20 transects in Area A (PR1-PR20) and 4 transects in Area E (EL1 and EL12-EL14). Reference transects were utilized to determine the performance standards for the Area A Rift Valley Restoration Sites (PR1, PR7, PR9, PR13, and PR16). A Baseline reference transect (EL2) was assessed in Area E in order to develop performance standards for the Munz Canyon Restoration Site (EL1 and EL13). In general, transects were 50 meters in length and were sampled every 5 meters. Transects have been permanently marked in the field and GPS points recorded so that the same transects will be sampled in future years. The transect locations are depicted in Figure 5 and Figure 6.

Vegetation was monitored for cover of native species; cover of non-native invasive species; and species richness within each stratum. For all transects, invasive species are defined as those rated highly invasive by the California Invasive Plant Council (Cal-IPC 2020). These results were used to determine the species richness, cover of natives, and cover of invasive species for each restoration site and enhancement areas based on the performance standards described in Section 3.2.

Transects were sampled using either quadrats or belt plots.

Wetland Quadrat Sampling: A 1-meter quadrat was placed every 5 meters along 50-meter long vegetation monitoring transects within wetland restoration areas. Species and cover class[1] were recorded within each quadrat in order to calculate average absolute cover for native and non-native invasive species; average relative cover of non-native invasive species (when applicable); and total native species richness. A photograph was taken of each quadrat. Two transects were sampled differently than this general protocol:

- Transect PR15 is in an area where the restored wetland habitat is only 40 meters in width; as such, 7 quadrats were sampled from meter 15 to meter 45.
- Transect EL1 is 250 meters long and quadrats were placed every 5 meters.

Riparian Belt Plot Sampling: The Area A riparian planting area (PR 8), the Area A Enhancement Area (PR 17 and PR 18), and the Area E Enhancement Area (EL 11, EL 12, and EL 14) transects were sampled using a belt plot instead of quadrats. These 50-meter transects were assessed using 2.5 meter by 5 meter plots, resulting in 10 sampling plots per transect. Species and cover class[1] were recorded within each belt plot in order to assess performance standards, including absolute cover for native and non-native, invasive species, relative cover of non-native, invasive species, and native species richness values.

In addition to assessing vegetation coverage using transects, wetland areas were traversed on foot and areas of dead vegetation, or other indicators of an unsuccessful establishment, were noted on field maps or handheld GPS devices to direct replanting or other management efforts for these areas.

Three transects originally detailed in the Development Plan (PR Transects 17, 22, and 25 of Area A) have been removed from regular sampling activities. The removal of transect PR17 shifted the transect numbers for later transects. Thus, transect PR21 is now transect PR20, PR20 is now PR19, PR19 is now PR18, and PR18 is now PR17 (Table 3). In addition, prefixes have been added to transect numbers to facilitate understanding of their location. Transects within Area A have been given prefix PR, and those within Area E have been given prefix EL.

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[1] *Cover classes are as follows: 0=<1%, 1=1-5%, 2=5-25%, 3=25-50%, 4=50-75%, 5=75-95%, 6=95-100%*

Table 3. Transect Number Changes between Development Plan and Annual Report

Site	Transect Number, as listed in the: Development Plan	Transect Number, as listed in the: Annual Report	Purpose
Area A	1	PR1	Wetland reference
Area A	2	PR2	Stream restoration
Area A	3 …. 15	PR3 …. PR15	Wetland restoration
Area A	16	PR16	Wetland reference
Area A	17	N/A	Enhancement
Area A	18	PR17	Enhancement
Area A	19	PR18	Enhancement
Area A	20	PR19	Wetland restoration
Area A	21	PR20	Wetland restoration
Area A	22	N/A	Preservation
Area A	25	N/A	Preservation

In 2019, Area E Enhancement performance standards were also assessed at an additional transect, EL11. In 2020, it was discovered that this transect overlays a preservation area, not an enhancement area. As performance along this transect is not representative of performance in enhancement areas, it was excluded from the 2020 and 2021 enhancement area performance analysis. Additionally, because there are no performance standards for preservation areas, data collected at this transect cannot be measured against any standards. The data were collected using the belt plot sampling method and are presented here to facilitate interannual comparison between results at consistent monitoring locations throughout the performance monitoring period.

In 2021, two new transects were placed and assessed for performance, one in the Area E Enhancement Area (EL14) and one in the Area E Munz Canyon Restoration Site (EL13). In previous years, these areas were assessed using one transect each. The two new transects were added in each area to facilitate greater sampling power and improve the ability of annual monitoring efforts to capture representative on-site conditions. Additionally, the enhancement areas have followed unequal recovery trajectories following the 2013 Powerhouse Fire, and EL14 was placed in an area that has recovered more strongly compared to the area sampled by EL12. The two Area E Enhancement Area transects now cover a more representative area over which to assess performance.

2.3 Plant Survivorship

Plant survivorship was determined for each woody species within the wetland and non-wetland riparian planting areas. Individual dead plants were tallied, and the total number of surviving plants was calculated by subtracting the number of observed dead from the total number installed for each species, not including individuals that have been replaced. Percent survivorship was then calculated by dividing the

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total number of surviving plants by the total number installed for each species, not including individuals that have been replaced. Plant survivorship estimates only occur in riparian and shrub plantings; due to their growth forms, it is not feasible to count individual herbaceous plants.

2.4 Photo Documentation

Visual records document changes in the Bank Property during the monitoring period. Pre-construction, post-construction, and initial planting photo documentation has been completed, and annual monitoring photo documentation is underway to show progression of Bank habitats. Photopoints established pre-construction will continue to be used throughout the monitoring period to create consistent photographic documentation of the changes within the Bank Property. Photopoint locations were recorded with a GPS device and mapped to indicate the location and direction of photos taken at these locations, as shown in Figure 5 and Figure 6.

2.5 Residual Dry Matter Analysis

Residual dry matter (RDM) was assessed to determine whether pastures were overgrazed. Slope, aspect, and utilization were considered when selecting representative sampling points. A minimum of three samples were taken per pasture, with additional samples taken based on the number of areas of distinct forage height observed. At each point a 0.96-square foot circle was clipped, and weighed. These samples were then used to estimate pounds per acre of residual dry matter across grazed pastures in Area A and Area E.

2.6 Delineation Survey and Report Update

Site-wide delineations are required in Year 3 and Year 5 of the performance monitoring period for each Area of the Bank. The results will be presented in updated delineation reports for Areas A and E, which will be reviewed and approved by the IRT. These interim delineation assessments will be used to determine the amount of successful aquatic restoration implemented. The IRT will use this delineation to adjust the amount of credits generated by the Bank, up or down, to reflect the successful acreage amount.

A delineation was completed for Area E in 2019 (Year 3) and was conducted again in 2021 (Year 5). A delineation was completed in Area A in 2020 (Year 3) and will be conducted again in 2022 (Year 5). The methods used to delineate jurisdictional wetlands and waters within Area E and Area A were based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* ("Arid West Supplement"; USACE 2008). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to USACE Section 404 jurisdiction.

The results of the Area E 2021 (Year 5) delineation are presented in an updated delineation report submitted as Appendix H and summarized in Section 4.5.

3.0 PERFORMANCE STANDARDS

Performance standards vary by resource and monitoring methodology, and are presented below. For the 2021 annual monitoring period, Area E was compared to its Year 5 performance standards and Area A to its Year 4 performance standards

3.1 CRAM

3.1.1 Enhancement Areas

CRAM assessments were completed at the Area E and Area A Enhancement Area starting in Year 3. CRAM AAs and modules used to assess the AAs are summarized in Table 1 . Performance standards for the three AAs are listed below (Table 4). Petersen Ranch AA #11 was moved approximately 100 meters upstream prior to the Year 3 assessment to avoid a depressional wetland located within the original AA boundary. Transitions between wetland types and hydrogeomorphic breaks should be used to establish AA boundaries and should never be included within an AA (CWMW 2013).

Table 4. CRAM Performance Standards for Enhancement Areas

METRIC/SUBMETRIC		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR5	FINAL
Elizabeth Lake AA #12: Post-Fire Management Enhancement							
Buffer and Landscape Context[a,b]		NA	NA	65	65	65	65
Hydrology		NA	NA	41	41	41	41
Physical Structure		NA	NA	63	63	63	63
Biotic Structure		NA	NA	67	92	92	92
	Overall	NA	NA	60	66	66	66
Elizabeth Lake AA #14: Post-Fire Management Enhancement							
Buffer and Landscape Context[a,c]		NA	NA	90	90	90	90
Hydrology		NA	NA	92	92	92	92
Physical Structure		NA	NA	75	75	75	75
Biotic Structure		NA	NA	53	78	89	89
	Overall	NA	NA	78	84	87	87
Petersen Ranch AA #11: Cattle Exclusion Enhancement							
Buffer and Landscape Context[a,d]		NA	NA	93	93	100	100
Hydrology		NA	NA	75	75	75	75
Physical Structure		NA	NA	63	63	63	63
Biotic Structure		NA	NA	81	97	100	100
	Overall	NA	NA	78	82	85	85

[a] Due to its calculation method, it is not possible to achieve the Buffer and Landscape Context Attribute Target Scores included in the Development Plan given any permutation of submetric scores; therefore, these attribute scores have been corrected as noted to ensure scores are attainable given submetric values.
[b] Attribute Scores of 67 were corrected to 65
[c] Attribute Scores of 92 were corrected to 90
[d] Attribute Scores of 92 were corrected to 93

3.1.2 Area E Munz Canyon Restoration Site

CRAM assessments were completed at the Area E Munz Canyon Restoration Site starting in Year 3. CRAM AAs and modules used to assess the AAs are summarized in Table 1.. Performance standards for the two AAs are listed below (Table 5).

Table 5. CRAM Performance Standards for the Munz Canyon Restoration Site

Metric/Submetric	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Buffer and Landscape Context[a,b]	NA	NA	90	90	90	90
Hydrology	NA	NA	92	92	92	92
Physical Structure	NA	NA	63	70	75	75
Biotic Structure	NA	NA	61	70	78	78
Overall	NA	NA	78	81	85	85

[a] Due to its calculation method, it is not possible to achieve the Buffer and Landscape Context Attribute Target Scores included in the Development Plan given any permutation of submetric scores; therefore, these attribute scores have been corrected to ensure scores are attainable given submetric values.
[b] Attribute Scores of 92 were corrected to 90.

3.1.3 Area A Petersen Stream Restoration Site

CRAM assessments were completed at the Petersen Stream Restoration Site starting in Year 3. The CRAM AA and modules used to assess the AA are summarized in Table 1. Performance standards for the AA are listed below (Table 6).

Table 6. CRAM Performance Standards for the Petersen Stream Restoration Site

Metric/Submetric	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Buffer and Landscape Context[a,b]	NA	NA	84	84	84	84
Hydrology	NA	NA	67	67	67	67
Physical Structure	NA	NA	63	70	75	75
Biotic Structure	NA	NA	61	70	78	78
Overall	NA	NA	69	73	76	76

[a] Due to its calculation method, it is not possible to achieve the Buffer and Landscape Context Attribute Target Scores included in the Development Plan given any permutation of submetric scores; therefore, these attribute scores have been corrected as noted to ensure scores are attainable given submetric values.
[b] Attribute Scores of 83 were corrected to 84

3.1.4 Area A Rift Valley Wetland Restoration Site

CRAM assessments were completed at the Rift Valley Wetland Restoration Site starting in Year 3. The CRAM AAs and modules used to assess the AAs are summarized in Table 1. Performance standards for the AAs are listed below (Table 7).

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Table 7. CRAM Performance Standards for the Rift Valley Wetland Restoration Sites

Metric/Submetric	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Buffer and Landscape Context	NA	NA	75	75	**75**	**75**
Hydrology	NA	NA	83	83	**83**	**83**
Physical Structure	NA	NA	50	55	**63**	**63**
Biotic Structure	NA	NA	67	72	**78**	**78**
Overall	NA	NA	67	72	**75**	**75**

3.2 Uniform Performance Standards

Enhancement areas were monitored for attainment of performance standards summarized in Table 8. Restoration areas within Area E and Area A were monitored for attainment of performance standards summarized in Tables 9, 10, and 11. Assessment areas and transect locations are shown in Figure 5 and Figure 6.

3.2.1 Enhancement Areas

Transects EL12 and EL14 were used to assess Area E Enhancement UPS. Transects PR17 and PR18 were used to assess Area A Enhancement UPS. Target UPS for Enhancement Areas are presented below. (Table 8).

Table 8. UPS for Enhancement Areas

Type	UPS	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Biological	UPS #28 Dominance of Natives	Cover of native species will be at least 20% absolute cover.		Cover of native species will be at least 30% absolute cover.		Cover of native species will be at least 60% absolute cover.	
	UPS #29 Dominance of Exotics[1]	Absolute cover of non-native, invasive species will be ≤ 10%.					
	UPS #31 Species Richness	Number of native species will be ≥ 9.					

[1] "Invasive" defined as species rated as highly invasive by Cal-IPC (2020)

3.2.2 Area E Munz Canyon Restoration Site

The performance of the Munz Canyon Restoration Site is based upon an on-site reference upstream of the former dam for hydrological, physical, and biological conditions. Transects EL1 and EL13 were used to assess the Munz Canyon Restoration Site. Performance standards are shown in Table 9.

Table 9. UPS for the Area E Munz Canyon Restoration Site

Type	Uniform Performance Standard	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Physical	UPS #2	The mitigation retains or increases stream stability and does not cause site, upstream, or downstream excessive erosion or aggradation. Specifically: Overall channel form should not indicate a consistent trajectory indicating a transition from a multi-thread to a single thread channel form.					
Hydrologic	Custom	Field indicators of Ordinary High Water and distinct hydrogeomorphic floodplain units will be documented within the alluvial floodplain.					
Biological	UPS #28 Dominance of Natives	Native species will be ≥ 5% absolute cover. ≥50% of this native cover will be shrubs.	Native species will be ≥ 10% absolute cover. ≥50% of this native cover will be shrubs.	Cover of native species will be at least 20% absolute cover. ≥50% of this native cover will be shrubs.	Cover of native species will be at least 30% absolute cover. ≥50% of this native cover will be shrubs.	Cover of native species will be at least 50% absolute cover. ≥50% of this native cover will be shrubs.	Cover of native species will be at least 50% absolute cover. ≥50% of this native cover will be shrubs.
	UPS #29 Dominance of Exotics[1,2]	Relative cover of non-native, invasive species will be 0%.					
	UPS #31 Species Richness	Number of native species in planting areas will be ≥ 14 species.					

[1] Excluding non-native annual grasses listed as highly invasive by Cal-IPC (2020), which will be ≤ 10% cover.
[2] "Invasive" defined as species rated as highly invasive by Cal-IPC (2020)

3.2.3 Area A Petersen Stream Restoration Site

The performance of the Petersen Stream Restoration Site is based on monitoring for appropriate hydrological, physical and biological characteristics of the re-established and rehabilitated areas at the restoration site. Transect PR2 was monitored to measure Petersen Stream UPS. Performance standards for this site are detailed in Table 10.

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Table 10. UPS for the Petersen Stream Restoration Site

Type	Uniform Performance Standard	Year 1	Year 2	Year 3	Year 4	Year 5	Final
Physical	UPS #2	The mitigation retains or increases stream stability and does not cause site, upstream, or downstream excessive erosion or aggradation. Specifically: Overall channel form should not indicate a consistent trajectory indicating a transition from a multi-thread to a single thread channel form.					
Hydrologic	Custom	Field indicators of Ordinary High Water and distinct hydrogeomorphic floodplain units will be documented within the alluvial floodplain.					
Biological	UPS #28 Dominance of Natives	Native species will be at least 5% absolute cover.	Native species will be at least 10% absolute cover.	Native species will be at least 20% absolute cover.	Native species will be at least 30% absolute cover.	Native species will be at least 50% absolute cover.	Native species will be at least 50% absolute cover.
	UPS #29 Dominance of Exotics[1,2]	Relative cover of non-native, invasive species will be 0%.					
	UPS #29 Dominance of Exotics[1,2]	Relative cover of non-native, invasive grass species will be 10%.					
	UPS #31 Species Richness	Number of native species in planting areas will be ≥ 14 species.					

[1] Excluding non-native annual grasses listed as highly invasive by Cal-IPC (2020), which will be ≤ 10% cover.
[2] "Invasive" defined as species rated as highly invasive by Cal-IPC (2020)

3.2.4 Area A Rift Valley Wetland Restoration Site

The performance of the Rift Valley Wetland Restoration Site is based on monitoring for appropriate hydrological, physical, and biological characteristics within the rehabilitation areas. Table 11 summarizes the uniform performance standards for the Lower Pond, Upper Pond, Pond A through Pond G, and the Wetland Restoration Site (Figure 4). The wetland restoration transects within Rift Valley (PR3, PR4, PR5, PR6, PR8, PR10, PR11, PR12, PR14, PR16, PR19 and PR20) were assessed to measure Rift Valley UPS. Transects PR1, PR7, PR9, PR13, and PR15 are reference sites for Rift Valley UPS assessment.

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Table 11. UPS for the Rift Valley Wetland Restoration Site

Type	UPS	Year 1	Year 2	Year 3	Year 4	Year 5 / Final
Physical	UPS #20	Must contain ≥25% of the structural patch types found at the selected reference site.	Must contain ≥50% of the structural patch types found at the selected reference site.	Must contain ≥75% of the structural patch types found at the selected reference site.	Must contain ≥90% of the structural patch types found at the selected reference site.	
Hydrologic	UPS #23	The Bank Sponsor shall ensure that the depth to groundwater is within the range of reference wetland conditions.				
Biological	UPS #28 Dominance of Natives	Absolute cover of native species will be at least 10% of reference site cover.	Absolute cover of native species will be at least 25% of reference site cover.	Absolute cover of native species will be at least 50% of reference site cover.	Absolute cover of native species will be at least 60% of reference site cover.	Absolute cover of native species will be at least 75% reference site cover.
	UPS #29 Dominance of Exotics	Relative cover of non-native, invasive species will be ≤ the reference site.				
	UPS #31 Species Richness	Number of native species in planting areas will be ≥ 75% of the reference site.				

[1] "Invasive" defined as species rated as highly invasive by Cal-IPC (2020)

3.3 Year 5 Wetland Delineation

Section VII.A.1.e.iii of the BEI states that a "submittal of a Waters of the U.S. jurisdictional determination and delineation for the Bank Property by the Bank Sponsor to the USACE" is required in order to achieve approval of the fifth credit release. As described in Part I, Section 6.1.4 of the BEI Development Plan, the IRT "will use this delineation to adjust the amount of credits generated by the Bank, up or down, to reflect the successful acreage amount."

A delineation of wetland and non-wetland waters for Area E was completed in 2019 during its Year 3 annual monitoring period, the results of which were presented in the 2019 annual monitoring report, and a delineation for Area A was completed in 2020 during its Year 3 annual monitoring period, the results of which were presented in the 2020 annual monitoring report.

A delineation of wetland and non-wetland waters potentially jurisdictional under Section 404 of the Clean Water Act was completed at Area E this year, which is in Year 5 of monitoring. The results are summarized in Section 4.5 and the full report is included as Appendix H.

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Table 30. Special-Status Wildlife Species Observed at Petersen Ranch

SCIENTIFIC NAME	COMMON NAME	STATUS
Accipiter cooperii	Cooper's hawk	CDFW Watch List
Accipiter striatus	Sharp-shinned hawk	CDFW Watch List
Agelaius tricolor	Tricolored blackbird	State Threatened CDFW Species of Special Concern USFWS Birds of Conservation Concern
Anniella sp.	California legless lizard	CDFW Species of Special Concern
Antrozous pallidus	Pallid bat	CDFW Species of Special Concern WBWG High Priority
Aspidoscelis tigris stejnegeri	Coastal whiptail	CDFW Species of Special Concern
Athene cunicularia	Burrowing owl	CDFW Species of Special Concern USFWS Birds of Conservation Concern
Baeolophus inornatus	Oak titmouse	USFWS Birds of Conservation Concern
Bombus crotchii	Crotch's bumble bee	CDFW Candidate Under Review
Branchinecta lynchi	Vernal pool fairy shrimp	USFWS Threatened
Buteo regalis	Ferruginous hawk	CDFW Watch List USFWS Birds of Conservation Concern
Buteo swainsoni	Swainson's hawk	State Threatened USFWS Birds of Conservation Concern
Chaetura vauxi	Vaux's swift	CDFW Species of Special Concern
Circus hudsonius	Northern harrier	CDFW Species of Special Concern
Elanus leucurus	White-tailed kite	CDFW Fully Protected
Emys marmorata	Western pond turtle	CDFW Species of Special Concern
Empidonax traillii	Willow flycatcher	State Endangered USFWS Birds of Conservation Concern
Falco mexicanus	Prairie falcon	CDFW Watch List USFWS Birds of Conservation Concern
Falcon peregrinus	Peregrine falcon	CDFW Fully Protected USFWS Birds of Conservation Concern
Haliaeetus leucocephalus	Bald eagle	Federal Delisted State Endangered CDFW Fully Protected USFWS Birds of Conservation Concern

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Table 30. Special-Status Wildlife Species Observed at Petersen Ranch (continued)

SCIENTIFIC NAME	COMMON NAME	STATUS
Lanius ludovicianus	Loggerhead shrike	CDFW Species of Special Concern
		USFWS Birds of Conservation Concern
Lasionycteris noctivagans	Silver-haired bat	WBWG Medium Priority
Lasiurus cinereus	Hoary bat	WBWG Medium Priority
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CDFW Species of Special Concern
Myotis ciliolabrum	Western small-footed myotis	WBWG Medium Priority
Myotis yumanensis	Yuma myotis	WBWG Low-Medium Priority
Pelecanus erythrorhynchos	American white pelican	CDFW Species of Special Concern
Phrynosoma blainvillii	Coast horned lizard	CDFW Species of Special Concern
Picoides nuttallii	Nuttall's woodpecker	USFWS Birds of Conservation Concern
Spinus lawrencei	Lawrence's goldfinch	USFWS Birds of Conservation Concern

Table 31. Special-Status Wildlife Species Observed at Elizabeth Lake

SCIENTIFIC NAME	COMMON NAME	STATUS
Accipiter cooperii	Cooper's hawk	CDFW Watch List
Accipiter striatus	Sharp-shinned Hawk	CDFW Watch List
Aspidoscelis tigris stejnegeri	Coastal whiptail	CDFW Species of Special Concern
Baeolophus inornatus	Oak titmouse	USFWS Birds of Conservation Concern
Bombus crotchii	Crotch's bumble bee	CDFW Candidate Under Review
Calypte costae	Costa's hummingbird	USFWS Birds of Conservation Concern
Elanus leucurus	White-tailed kite	CDFW Fully Protected
Emys marmorata	Western pond turtle	CDFW Species of Special Concern
Lanius ludovicianus	Loggerhead shrike	CDFW Species of Special Concern
		USFWS Birds of Conservation Concern
Phrynosoma blainvillii	Coast horned lizard	CDFW Species of Special Concern
Picoides nuttallii	Nuttall's woodpecker	USFWS Birds of Conservation Concern
Puma concolor	Mountain Lion	State Candidate
Selasphorus sasin	Allen's hummingbird	USFWS Birds of Conservation Concern
Spinus lawrencei	Lawrence's goldfinch	USFWS Birds of Conservation Concern
Spizella atrogularis	Black-chinned sparrow	USFWS Birds of Conservation Concern

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5.4.7 Monitoring Around Exclusion Areas

There are several small exclusion areas within Area A of the Petersen Ranch Property but are Not A Part of the Bank Property (Figure 1). While the Area A conservation easement does not include these areas, certain monitoring and management actions will be conducted in lands immediately adjacent to these areas to ensure the Bank's resources are protected from any adverse edge effects. This monitoring will include assessment of social trails, erosion, vegetation disturbance, trash, vandalism, runoff, invasive species, fire hazard, and non-permitted uses such as off-highway vehicle use (OHV), out of season hunting, and outdoor fires. No change in land uses that could result in adverse edge effects were observed in 2021.

6.0 TRANSFER OF CREDITS

Appendix F contains the credit transfer ledger through November 1, 2021, which shows all credits transferred since the bank establishment date and includes an accounting of all remaining credits.

7.0 IMPLEMENTATION FEE PAYMENT STATUS

The credit release schedule and status of each release is summarized in Table 32. Each CDFW-approved credit release is contingent upon payment of the Implementation Fee to CDFW. The third credit release for Area E was approved by CDFW in August 2020 and the third credit release for Area A was approved by CDFW in April 2021. The Implementation Fees associated with the first three credit releases have been paid.

Table 32. Credit Release Schedule

Credit Release	Maximum Percentage of Credits Released	Maximum Cumulative Credits Released	Credits Released?
1	15%	15%	Yes
2	25%	40%	Yes
3	15%	55%	Yes
4	15%	70%	No
5	15%	85%	No
Final	15%	100%	No

8.0 ENDOWMENT FUND

Area A and Area E each have two endowments, the Easement Compliance (EC) Endowment and the Long-Term Management (LTM) Endowment. The EC Endowments are intended to cover the costs associated with monitoring and reporting of the conservation easement, and was fully funded up front for both Area A and Area E. The LTM Endowments are intended to cover the cost of long-term management of the Bank's habitats and infrastructure in perpetuity.

Area A: Per Exhibits D-2 and D-3 of the BEI, the SCE easement endowment was rolled into the Area A EC and LTM Endowments. The EC was funded in full on December 30, 2014 with a deposit of $ Ex. 4 CBI by SCE, and a deposit of $ Ex. 4 CBI from the Bank Sponsor. The current balance of the Area A EC Endowment is Ex. 4 CBI The LTM Endowment was started with a Ex. 4 CBI deposit from SCE on December 30, 2014. The Bank Sponsor made a first deposit of Ex. 4 CBI on February 7, 2018, and a second deposit of Ex. 4 CBI on March 30, 2021. The current balance of the Area A LTM Endowment is Ex. 4 CBI

Area E: The Area E EC Endowment of Ex. 4 CBI was funded in full on April 29, 2016. The current balance of the EC Endowment is Ex. 4 CBI A first deposit of Ex. 4 CBI was made to the LTM Endowment on February 7, 2019. A second deposit of Ex. 4 CBI was made to the LTM Endowment on July 10, 2020. The balance on the LTM Endowment financial statement is Ex. 4 CBI

Accounting for the two endowments is shown in Appendix G.

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9.0 REFERENCES

Cal-IPC 2020

California Invasive Plant Council. 2020. The California Invasive Plant Council Inventory. California Invasive Plant Council, Berkeley, CA. Available online: http://www.cal-ipc.org/ip/inventory/index.php. Accessed: June 2020.

Calflora 2020

Calflora: Information on California plants for education, research and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. 2020. Berkeley, California: The Calflora Database [a non-profit organization]. Available: https://www.calflora.org/ (Accessed: Sep 25, 2020).

CNDDB 2021

California Department of Fish and Wildlife. (2021). California Natural Diversity Database (CNDDB). Accessed September 2021.

Curtis and Lichvar 2010

Curtis KE and RW Lichvar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, Publication EDDC/CRREL TN-10-1.

CWMW 2013a

California Wetlands Monitoring Workgroup. 2013a. Depressional Wetlands Field Book, Version 6.1. February 2013.

CWMW 2013b

California Wetlands Monitoring Workgroup. 2013b. Riverine Wetlands Field Book, Version 6.1. January 2013.

CWMW 2015

California Wetlands Monitoring Workgroup. 2015. California Rapid Assessment Method, Episodic Riverine User's Manual and Field Book, Version 1.0. December 2015.

CWMW

California Wetland Monitoring Workgroup. 2018. Data Quality Assurance Plan, California Rapid Assessment Method for Wetlands, Version 7 – October 2018.

CWMW 2019

California Wetlands Monitoring Workgroup. 2019. Using the California Rapid Assessment Method (CRAM) for Project Assessment as an Element of Regulatory, Grant, and other Management Programs, Technical Bulletin – Version 2.0., 85 pp. September 2019.

CWMW 2021

California Wetlands Monitoring Workgroup (CWMW). EcoAtlas. Accessed [September 2021]. https://www.ecoatlas.org.

Environmental Laboratory 1987

Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

USACE 2008   U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of
                  Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).
                  September.

Google Earth 2021 Google Earth Pro V 7.3.3.7786. (May 24, 2013). Imagery Landsat/
                  Copernicus. (Accessed October 2021).

WRA 2013   WRA, Inc. 2013. Biological Resource Inventory. Petersen Ranch, Leona
                  Valley, Los Angeles County, California. March 2013.

WRA 2012   WRA, Inc. 2012. Biological Resources Inventory Report, Proposed Elizabeth
                  Lake Mitigation/Conservation Bank, Los Angeles County, California. July
                  2012.

WRA 2016a   WRA, Inc. 2016a. Petersen Ranch Mitigation Bank Enabling Instrument.
                  Executed 11 May 2016.

WRA 2016b   WRA, Inc. 2016b. Petersen Ranch Mitigation Bank Interim Management
                  Plan. Los Angeles County, California. March 2016

WRA 2019   WRA, Inc. 2019. Delineation of Waters of the U.S. Jurisdictional Areas Year 3
                  Update for Area E. Los Angeles County, California. November 2019

VA Consulting 2014 VA Consulting, Inc. 2014. Petersen Ranch Mitigation Bank Preliminary
                  Engineering Report. Prepared for Land Veritas, January 29, 2014

VCS 2014   VCS Environmental. 2014. Evaluation of Riverine and Depressional Wetlands
                  using the California Rapid Assessment Method (CRAM) for the Petersen
                  Mitigation Bank. Prepared for Land Veritas Corp, September 2014.

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #11 (LE-AA11)	
Project Name: PRMB - Area E	
Assessment Area ID #:	
Project ID #:	**Date:** 6/2/21

Assessment Team Members for This AA

Schliebe; Batick

AA Category:

☐ Pre-Restoration   ☒ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☒ Post-Impact fire   ☐ Training   ☐ Ambient

☐ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg management

Which best describes the type of depressional wetland?

☐ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☒ other (specify): riparian woodland

AA Encompasses:

☒ entire wetland   ☐ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>? ☐ defined ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>? ☐ defined ☒ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☐ distinct or ☒ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

AA encompasses a riparian area; historically an orchard. Not a true depression. Potentially fed from groundwater.

Comments:

Scoring Sheet: Depressional Wetlands

AA Name:				Date:	

Attribute 1: Buffer and Landscape Context (pp. 8-15)				Comments	
		Alpha.	Numeric		
Aquatic Area Abundance Score (D)		C	6	32.75%	
Buffer:					
Buffer submetric A: *Percent of AA with Buffer*	Alpha.	Numeric			
	A	12		100%	
Buffer submetric B: *Average Buffer Width*	A-	12		990m	
Buffer submetric C: *Buffer Condition*	B	9		NN space >25%	
Raw Attribute Score = D+[C x (A x B)^½]^½			16.39	**Final Attribute Score = (Raw Score/24) x 100**	68

Attribute 2: Hydrology (pp. 16-21)					
		Alpha.	Numeric		
Water Source		A	12		
Hydroperiod		A	12		
Hydrologic Connectivity		A	12		
Raw Attribute Score = sum of numeric scores			36	**Final Attribute Score = (Raw Score/36) x 100**	100

Attribute 3: Physical Structure (pp. 22-28)					
		Alpha.	Numeric		
Structural Patch Richness		C	6	5	
Topographic Complexity		C	6	micro	
Raw Attribute Score = sum of numeric scores			12	**Final Attribute Score = (Raw Score/24) x 100**	50

Attribute 4: Biotic Structure (pp. 29-39)					
Plant Community Composition (based on submetrics A-C)					
	Alpha.	Numeric			
Plant Community submetric A: *Number of plant layers*	B	9		? NN	
Plant Community submetric B: *Number of Co-dominant species*	A	12		10	
Plant Community submetric C: *Percent Invasion*	B	9		Vig <10%	
Plant Community Composition Metric *(numeric average of submetrics A-C)*			10		
Horizontal Interspersion		A	12		
Vertical Biotic Structure		B	9		
Raw Attribute Score = sum of numeric scores			31	**Final Attribute Score = (Raw Score/36) x 100**	86
Overall AA Score (average of four final Attribute Scores)				76	

3

Worksheet for Aquatic Area Abundance Metric (Method 1)

Percentage of Transect Lines that Contains Aquatic Area of Any Kind	
Segment Direction	Percentage of Transect Length That is an Aquatic Feature
North	24%
South	52%
East	31%
West	12%
Average Percentage of Transect Length That Is an Aquatic Feature	29.75%

*Same as last year

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: ____100____ %

4

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	245
B	250
C	
D	
E	
F	
G	
H	
Average Buffer Width *Round to the nearest whole number (integer)*	~250m

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

STRUCTURAL PATCH TYPE (circle for presence)	Depressional
Minimum Patch Size	3 m²
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	X
Animal mounds and burrows	X
Bank slumps or undercut banks in channels or along shoreline	N
Cobbles and Boulders	N
Concentric or parallel high water marks	N
Filamentous macroalgae or algal mats	N
Islands (mostly above high-water)	N
Large woody debris	X
Non-vegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	N
Open water	N
Plant hummocks and/or sediment mounds	N
Soil cracks	N
Standing snag(s) (1 or more at least 3 m tall)	X
Submerged vegetation	N
Swales on floodplain or along shoreline	N
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	﹁
Woody vegetation in water	N
Total Possible	**17**
No. Observed Patch Types (enter here and use in Table 15 below)	5

6

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

North to South

East to West
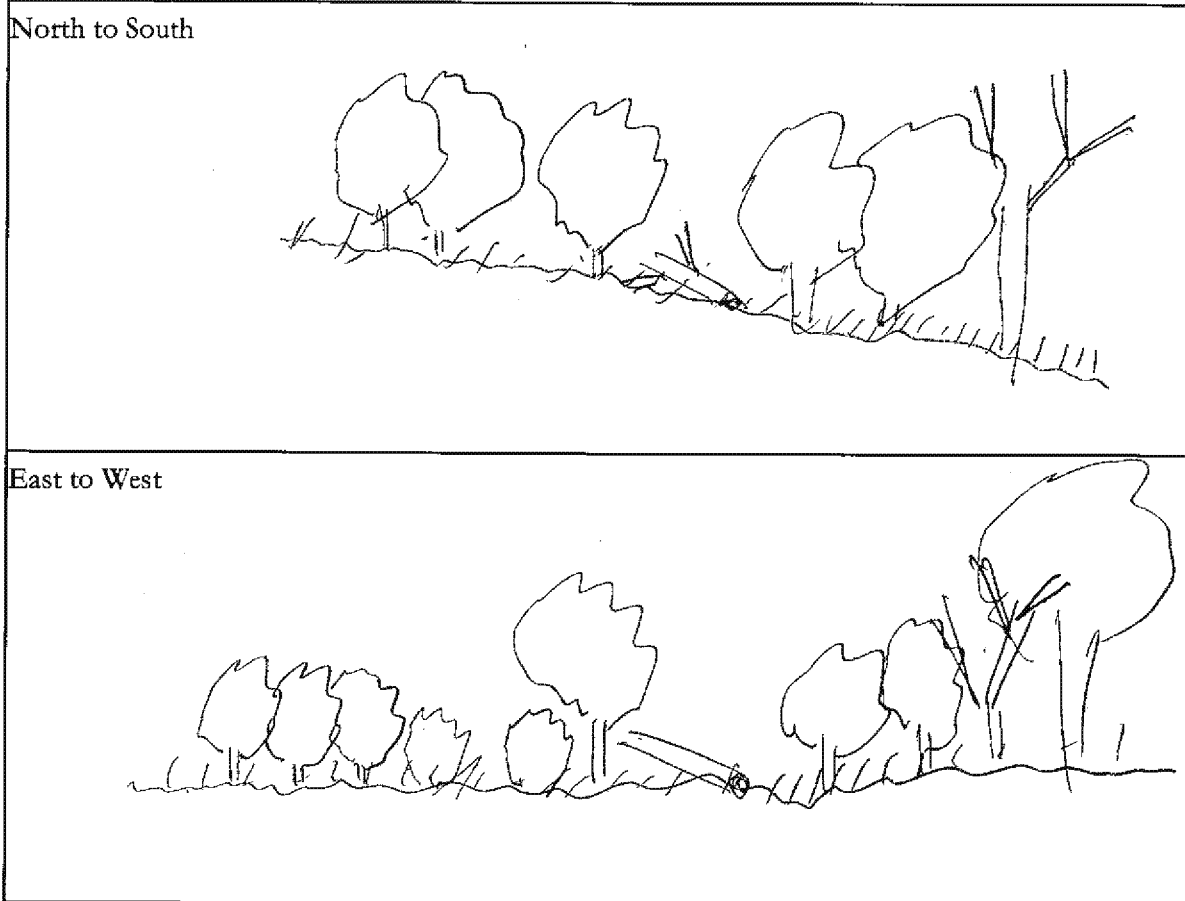
Plant Community Metric Worksheet 2 of 8: Co-dominant species richness
(A dominant species represents ≥10% *relative* cover)
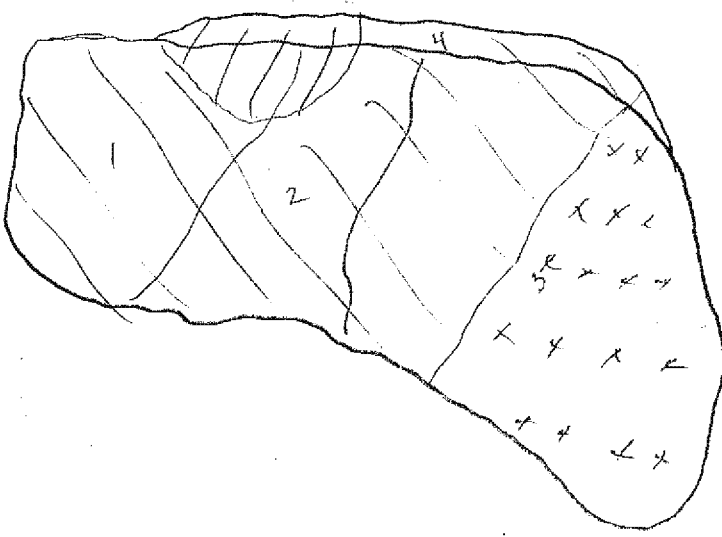
* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Floating or Canopy-forming	Invasive?	Short (≤0.5 m)	Invasive?
		JUN MEX	
		BRO DIA	Y
		BRO TEC	Y
		SIS ALT	

Medium (0.5 – 1.5 m)	Invasive?	Tall (1.5 – 3.0 m)	Invasive?
ART DRA			
ELYMUS TRI(?) ✓			

SAM
SAL LAS

Very Tall (>3.0 m)	Invasive?		
POP FRE		**Total number of co-dominant species for all layers combined** (enter here and use in Table 19)	10
SAM NIG			
SAL LAS		**Percent Invasion** *Round to the nearest whole number (integer)* (enter here and use in Table 19)	$\frac{2}{10} = 20\%$
SAL LAE			

8

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Assigned zones:

1) POP FRE

2) POP FRE, Salix, Sambucus

3) Salix LAS + LAE

4) tarragon fringe

5)

6)

NN grasses   Elymus   xx JUN MEX > 25%

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✕	
Comments		
NN grasses		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✕	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name:	AA #12 (LE-AA12)
Project Name:	PRMB - Area E
Assessment Area ID #:	
Project ID #:	**Date:** 6/2/21

Assessment Team Members for This AA

Schliebe, Batiuk

AA Category:

☐ Pre-Restoration ☒ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☒ Post-Impact (fire ☐ Training ☐ Ambient

☐ Reference ☐ Other:

Origin of Wetland (if known):

☐ Natural system ☒ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: Veg management

Which best describes the type of depressional wetland?

☒ freshwater marsh ☐ alkaline marsh ☐ brackish marsh

☒ other (specify): "open water"

AA Encompasses:

☒ entire wetland ☐ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☒ defined   ☐ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☒ defined   ☐ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☒ no

Is the topographic basin of the wetland   ☒ distinct **or** ☐ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

Now dry; last inundated in aerial imagery on Oct 2011
Artificially constructed

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

6

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Ex. 4 CBI

8

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology	?	
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✕	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✕	✕
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✕	✕
Rangeland (livestock rangeland also managed for native vegetation)	✕	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA #14 (LE- AA14)	
Project Name: PRMB - Area E	
Assessment Area ID #:	
Project ID #:	**Date:** 6/2/21

Assessment Team Members for This AA:

Matt S. ; Scott B.

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):

Upstream Point Latitude: **Longitude:**

Downstream Point Latitude: **Longitude:**

Wetland Sub-type:

☐ Confined   ☒ Non-confined

AA Category:

☐ Restoration   ☒ Mitigation   ☐ Impacted   ☐ Ambient   ☐ Reference   ☐ Training

☐ Other:

Did the river/stream have flowing water at the time of the assessment? ☐ yes   ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial   ☐ intermittent   ☒ ephemeral

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

Ex. 4 CBI

Ex. 4 CBI

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

8

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

Ex. 4 CBI

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

10

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)	X	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

11

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

12

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA #15 (LE-AA15)	
Project Name: PRMB - Area E	
Assessment Area ID #:	
Project ID #:	**Date:** 6/2/21

Assessment Team Members for This AA:

Schliebe, Batiuk

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):

Upstream Point Latitude: 34.664864   **Longitude:** −118.421695

Downstream Point Latitude: 34.665659   **Longitude:** −118.422216

Wetland Sub-type:

☐ Confined   ☒ Non-confined

AA Category:

☐ Restoration   ☒ Mitigation   ☐ Impacted   ☐ Ambient   ☐ Reference   ☐ Training

☐ Other:

Did the river/stream have flowing water at the time of the assessment? ☐ yes   ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

     ☐ perennial   ☐ intermittent   ☒ ephemeral

1

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Comments:

2

Ex. 4 CBI

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA	
Segment No.	Length (m)	Segment No.	Length (m)
1		1	
2		2	
3		3	
4		4	
5		5	
Upstream Total Length		Downstream Total Length	

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

Ex. 4 CBI

Ex. 4 CBI

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

Ex. 4 CBI

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

10

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)	X	
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

11

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Project and Site ID: _____ AA #2 _____
Date: _____ 6|3|21 _____
Staff: _____ MS + SB _____
Photo #: _____

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Project and Site ID: PRMB AA#14
Date: 6/1/21
Staff: MS + SC
Photo #: _____

entered
6/18/21
mcs

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Project and Site ID: _PRMB____PR-AA17_

Date: _6/1/21_

Staff: _MS + SC_

Photo #: _____

entered
6/16/21
MCS

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Basic Information Sheet: Depressional Wetlands

Assessment Area Name:	AA#3 (PR-AA3
Project Name:	PRMB - Area A
Assessment Area ID #:	
Project ID #:	**Date:** 6/3/u

Assessment Team Members for This AA

Schliebe ; Batiuk

AA Category:

☐ Pre-Restoration　　☒ Post-Restoration　　☐ Pre-Mitigation　　☐ Post-Mitigation

☐ Pre-Impact　　☐ Post-Impact　　☐ Training　　☐ Ambient

☐ Reference　　☐ Other:

Origin of Wetland (if known):

☐ Natural system　　☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds　☐ amphibians　☐ general wildlife　☐ sediment　☐ water quality　☐ stormwater

☐ water supply (agriculture)　☐ water supply (livestock)　☐ not managed　☐ other:

Which best describes the type of depressional wetland?

☒ freshwater marsh　　　☐ alkaline marsh　　　☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland　　　☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated　　☐ saturated soil, but no surface water　　☐ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded　　☒ seasonally flooded　　☐ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes   ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☐ defined   ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☐ defined   ☒ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☒ no

Is the topographic basin of the wetland   ☒ distinct **or** ☐ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Lacked ponding as seen last year; some remnant dried algae among wetland veg.

Comments:

Converted from previous duck pond, which was constructed in late 50's/early 60's

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)	

Ex. 4 CBI

5

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
NN grasses in surrounds affects buffer score		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name:	AA #4 (PR-AA4)
Project Name:	PRMB - Area A
Assessment Area ID #:	
Project ID #:	**Date:** 6/3/21

Assessment Team Members for This AA

Schwabe ; Batiuk

AA Category:

☐ Pre-Restoration   ☒ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☐ Post-Impact   ☐ Training   ☐ Ambient

☐ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg

Which best describes the type of depressional wetland?

☒ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland   ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☐ defined   ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☐ defined   ☒ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☒ no

Is the topographic basin of the wetland ☐ distinct **or** ☒ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

AA borders AA#3 to the SW. May receive floodwaters from Lower Pond (AA#3) at high water levels.

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

7

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No	
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system
	non-confined riverine	confined riverine	bar-built estuarine
	perennial saline estuarine	perennial non-saline estuarine	wet meadow
	lacustrine	seep or spring	playa

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
NN grasses in surrounds influencing buffer metrics		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #7 (PR- AA7)	
Project Name: PRMB - Area A	
Assessment Area ID #:	
Project ID #:	**Date:** 6/1/21

Assessment Team Members for This AA

Schlrebe, Carroll

AA Category:

☐ Pre-Restoration   ☒ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☐ Post-Impact   ☐ Training   ☐ Ambient

☐ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system   Restored

Type of Management (if known):

☐ waterfowl/birds   ☐ amphibians   ☐ general wildlife   ☐ sediment   ☐ water quality ☐ stormwater

☐ water supply (agriculture)   ☐ water supply (livestock)   ☐ not managed   ☒ other: veg. management

Which best describes the type of depressional wetland?

☒ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland   ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>? ☐ defined ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>? ☐ defined ☒ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☐ distinct **or** ☒ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

Crescent shaped AA next to AA#8

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

7

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
flash grazing (weed management effort) but NN grasses still affecting buffer scores		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #8 (PR-AA8)	
Project Name: PLMB	
Assessment Area ID #:	
Project ID #:	**Date:** 6/1/21

Assessment Team Members for This AA

Schliebe ; Carroll

AA Category:

☐ Pre-Restoration ☒ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system   Restored

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg management

Which best describes the type of depressional wetland?

☒ freshwater marsh ☐ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>? ☐ defined ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>? ☐ defined ☒ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☐ distinct **or** ☒ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

Generally circular AA next to AA#7; previously an excavated duck pond

Ex. 4 CBI

Worksheet for Aquatic Area Abundance Metric (Method 1)

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	✕	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
flash grazing for weed management; NN grasses influencing buffer score		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #10 (PR-AA10	
Project Name: PRMB - Area A	
Assessment Area ID #:	
Project ID #:	**Date:** 6/5/21

Assessment Team Members for This AA

Schliebe ; Batiuk

AA Category:

☐ Pre-Restoration ☒ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system restored

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg management

Which best describes the type of depressional wetland?

☒ freshwater marsh ☐ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☐ defined   ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☐ defined   ☒ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☒ no

Is the topographic basin of the wetland   ☒ distinct **or** ☐ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

AA had unnatural pooled water along western extent due to leaking sprinkler system.

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Ex. 4 CBI

5

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

6

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

7

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)	✗	
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		
minor sprinkler system leak		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (**N/A for restoration areas**)		
Grading/ compaction (**N/A for restoration areas**)		
Plowing/Discing (**N/A for restoration areas**)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	✗	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	X
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
Flash grazing affecting entrainment ; NN grasses in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name:	AA #12 (PR-AA12)
Project Name:	PRMB - SCE Mitigation Site
Assessment Area ID #:	
Project ID #:	**Date:** ~~6/4~~ 6/4/21

Assessment Team Members for This AA

Schlebe, Carroll

AA Category:

☐ Pre-Restoration   ☒ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☐ Post-Impact   ☐ Training   ☐ Ambient

☐ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system   restored

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg management

---

Which best describes the type of depressional wetland?

☒ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland   ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

---

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☐ defined   ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☐ defined   ☒ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☒ no

Is the topographic basin of the wetland ☒ distinct or ☐ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
flash grazing ; NN grasses + forbs in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #13 (PR - AA13)	
Project Name: PRMB - SCF Mitigation Site (Reference)	
Assessment Area ID #:	
Project ID #:	**Date:** 6/4/1?

Assessment Team Members for This AA

Schliebe; Carroll

AA Category:

☐ Pre-Restoration   ☐ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☐ Post-Impact   ☐ Training   ☐ Ambient

☒ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system

Type of Management (if known):

☐ waterfowl/birds   ☐ amphibians   ☐ general wildlife   ☐ sediment   ☐ water quality   ☐ stormwater

☐ water supply (agriculture)   ☐ water supply (livestock)   ☐ not managed   ☒ other: veg management

Which best describes the type of depressional wetland?

☒ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland   ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes   ☐ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>?   ☐ defined   ☐ undefined

Does the wetland have a defined on undefined <u>inlet</u>?   ☐ defined   ☐ undefined

Are the inlet and outlet at the same location?   ☐ yes   ☐ no

Is the topographic basin of the wetland   ☐ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Ex. 4 CBI

5

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

8

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	✕	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
Flash grazing; NN grasses in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

11

Basic Information Sheet: Depressional Wetlands

Assessment Area Name:	AA#15 (PR-AA15)
Project Name:	PRMB - Area A
Assessment Area ID #:	
Project ID #:	**Date:** 6/1/21

Assessment Team Members for This AA

Schliebe, Carroll

AA Category:

☐ Pre-Restoration ☒ Post-Restoration ☐ Pre-Mitigation ☐ Post-Mitigation

☐ Pre-Impact ☐ Post-Impact ☐ Training ☐ Ambient

☐ Reference ☐ Other:

Origin of Wetland (if known):

☒ Natural system ☐ Artificial system Restored

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: veg. management

Which best describes the type of depressional wetland?

☒ freshwater marsh ☐ alkaline marsh ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated ☐ saturated soil, but no surface water ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded ☐ seasonally flooded ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>? ☐ defined ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>? ☐ defined ☒ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☐ distinct **or** ☒ indistinct ?

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

Ex. 4 CBI

Worksheet for Aquatic Area Abundance Metric (Method 1)

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

4

Worksheet for calculating average buffer width of AA

Ex. 4 CBI

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

8

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	✕	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✕	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✕	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✕	✕
Comments		
Flash grazing + NN grasses in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✕	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Depressional Wetlands

Assessment Area Name: AA #16 (PR-AA16)	
Project Name: PRMB	
Assessment Area ID #:	
Project ID #:	**Date:** 6/1/21

Assessment Team Members for This AA

Schliebe; Carroll

AA Category:

☐ Pre-Restoration   ☒ Post-Restoration   ☐ Pre-Mitigation   ☐ Post-Mitigation

☐ Pre-Impact   ☐ Post-Impact   ☐ Training   ☐ Ambient

☐ Reference   ☐ Other:

Origin of Wetland (if known):

☒ Natural system   ☐ Artificial system   *Restored*

Type of Management (if known):

☐ waterfowl/birds ☐ amphibians ☐ general wildlife ☐ sediment ☐ water quality ☐ stormwater

☐ water supply (agriculture) ☐ water supply (livestock) ☐ not managed ☒ other: *veg management*

Which best describes the type of depressional wetland?

☒ freshwater marsh   ☐ alkaline marsh   ☐ brackish marsh

☐ other (specify):

AA Encompasses:

☐ entire wetland   ☒ portion of the wetland

Which best describes the hydrologic state of the wetland at the time of assessment?

☐ ponded/inundated   ☐ saturated soil, but no surface water   ☒ dry

What is the apparent hydrologic regime of the wetland?

Perennially flooded systems contain surface water year-round, *seasonally flooded* depressional wetlands are defined as supporting surface water for 4-11 months of the year (in > 5 out of 10 years.) *Temporarily flooded* depressional wetlands possess surface water between 2 weeks and 4 months of the year.

☐ perennially flooded   ☐ seasonally flooded   ☒ temporarily flooded

1

Does your wetland connect with the floodplain of a nearby stream? ☐ yes ☒ no

(system subject to overbank flow, a dammed stream does not count)

Does the wetland have a defined on undefined <u>outlet</u>? ☐ defined ☒ undefined

Does the wetland have a defined on undefined <u>inlet</u>? ☐ defined ☒ undefined

Are the inlet and outlet at the same location? ☐ yes ☒ no

Is the topographic basin of the wetland ☒ distinct **or** ☐ indistinct **?**

An *indistinct* topographic basin is one that lacks obvious boundaries between wetland and upland. Examples of such features are seasonal, depressional wetlands in very low-gradient landscapes.

Photo Identification Numbers and Description:

Photos should be taken from edge of AA looking toward the centroid of AA

	Photo ID No.	Description	Latitude	Longitude	Datum
1		(to) North			
2		(to) East			
3		(to) South			
4		(to) West			
5					
6					
7					
8					
9					
10					

Site Location Description and Land Use:

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet.

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

Ex. 4 CBI

5

Structural Patch Type Worksheet for Depressional Wetlands

Check each type of patch that is observed in the AA and use the total number of observed patches in Table 15.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At two locations in the AA, make a sketch of the profile from the AA boundary to AA boundary. Try to capture the major topographic features, slopes and intervening micro-topographic relief. Based on these sketches and the profiles in Figure 7, choose a description in Table 17 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

Horizontal Interspersion Worksheet

Use the spaces below to make a sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign names to the zones and record them on the right. Based on the sketch, choose a single profile from Figure 8 that best represents the AA overall.

Ex. 4 CBI

Wetland disturbances and conversions Worksheet

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	bar-built estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

9

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils (N/A for restoration areas)		
Grading/ compaction (N/A for restoration areas)		
Plowing/Discing (N/A for restoration areas)		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

10

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	✗	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	✗	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✗	✗
Comments		
flash grazing + NN grasses in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✗	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA #1 (PR-AA1)	
Project Name: PRM3 - Area A	
Assessment Area ID #:	
Project ID #:	**Date:** 4/3/21

Assessment Team Members for This AA:

Schlebe ; Batiuk

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):

Upstream Point Latitude: 34. 656648   **Longitude:** −118. 376253

Downstream Point Latitude: 34.657375   **Longitude:** −118. 376389

Wetland Sub-type:

☐ Confined   ☒ Non-confined

AA Category:

☑ Restoration   ☒ Mitigation   ☐ Impacted   ☐ Ambient   ☐ Reference   ☐ Training

☐ Other:

Did the river/stream have flowing water at the time of the assessment? ☐ yes   ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial   ☐ intermittent   ☒ ephemeral

1

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Stream had little flow this year. Streambed disturbed by cattle from flash grazing efforts on property. Flow patterns become indistinct towards northern section of AA.

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

Ex. 4 CBI

Ex. 4 CBI

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Ex. 4 CBI

9

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

Ex. 4 CBI

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

10

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	X
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		
Road runoff		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management	X	
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

11

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)	X	
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species	X	
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	X	X
Comments		
flash grazing; NN grasses in buffer		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)	X	
Transportation corridor	X	X
Rangeland (livestock rangeland also managed for native vegetation)	X	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

12

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: AA #11 (PR-AA11)	
Project Name:	
Assessment Area ID #:	
Project ID #:	**Date:** 6/3/21

Assessment Team Members for This AA:

Schliebe ; Batiuk

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m):

Upstream Point Latitude: 34.651095   **Longitude:** −118.366725

Downstream Point Latitude: 34.651836   **Longitude:** −118.366432

Wetland Sub-type:

☒ Confined   ☐ Non-confined

AA Category:

☐ Restoration   ☐ Mitigation   ☐ Impacted   ☐ Ambient   ☐ Reference   ☐ Training

☐ Other:

Did the river/stream have flowing water at the time of the assessment? ☐ yes   ☐ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial   ☐ intermittent   ☒ ephemeral

1

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Comments:

2

Ex. 4 CBI

Ex. 4 CBI

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Ex. 4 CBI

Ex. 4 CBI

Ex. 4 CBI

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

Please refer to the CRAM Photo Dictionary at www.cramwetlands.org for photos of each of the following patch types.

Ex. 4 CBI

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Ex. 4 CBI

8

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

Special Note:

* Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.

Ex. 4 CBI

9

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

Ex. 4 CBI

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

10

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✗	
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial		
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor		
Rangeland (livestock rangeland also managed for native vegetation)	✗	
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Ex. 4 CBI

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Ex. 4 CBI

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Ex. 4 CBI

Ex. 4 CBI

APPENDIX C – PHOTO DOCUMENTATION

Petersen Ranch PP-1 looking north on March 9, 2016

Petersen Ranch PP-1 looking north on April 13, 2017

Petersen Ranch PP-1 looking north on May 17, 2018
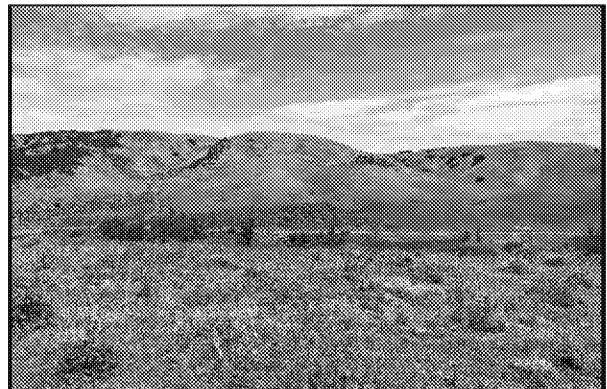
Petersen Ranch PP-1 looking north on May 15, 2019
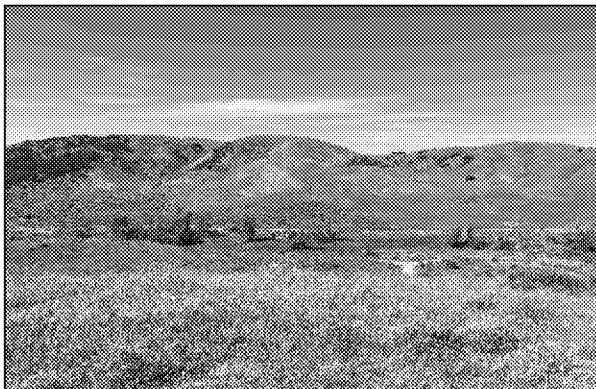
Petersen Ranch PP-1 looking north on May 21, 2020
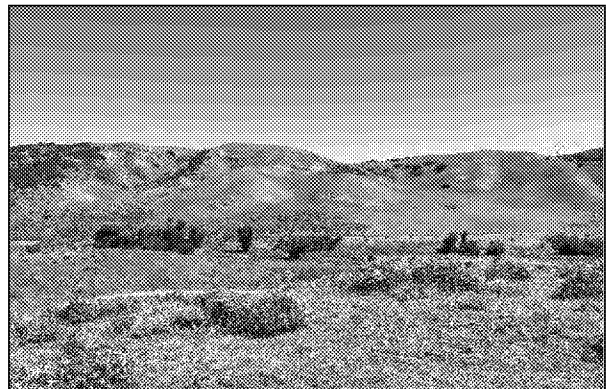
Petersen Ranch PP-1 looking north on June 3, 2021

Petersen Ranch Mitigation Bank
Los Angeles County, California

Appendix C-1: Site Photopoints

wra
ENVIRONMENTAL CONSULTANTS

ED_013814_00002494-00295

Petersen Ranch PP-1 looking east on March 9, 2016

Petersen Ranch PP-1 looking east on April 13, 2017

Petersen Ranch PP-1 looking east on May 17, 2018
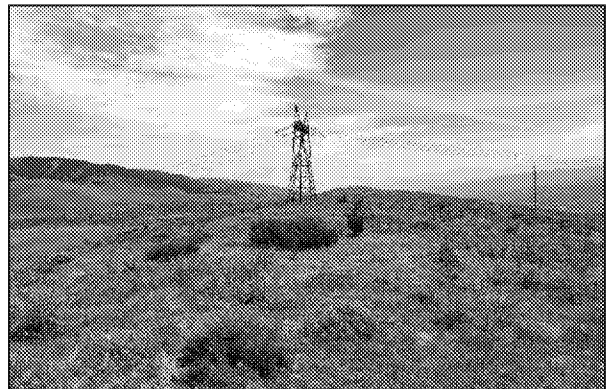
Petersen Ranch PP-1 looking east on May 15, 2019

Petersen Ranch PP-1 looking east on May 21, 2020

Petersen Ranch PP-1 looking east on June 3, 2021

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Los Angeles County, California

Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-1 looking south on March 9, 2016

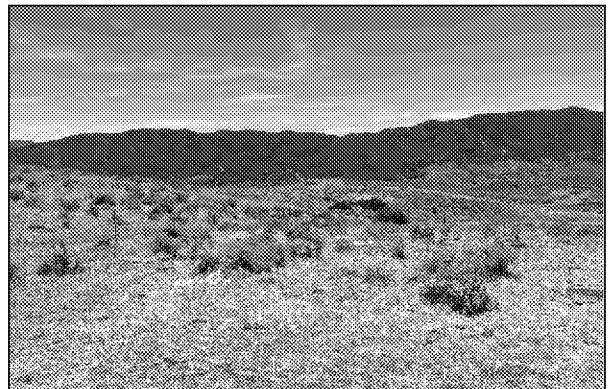Petersen Ranch PP-1 looking south on April 13, 2017

Petersen Ranch PP-1 looking south on May 17, 2018

Petersen Ranch PP-1 looking south on May 15, 2019

Petersen Ranch PP-1 looking south on May 21, 2020
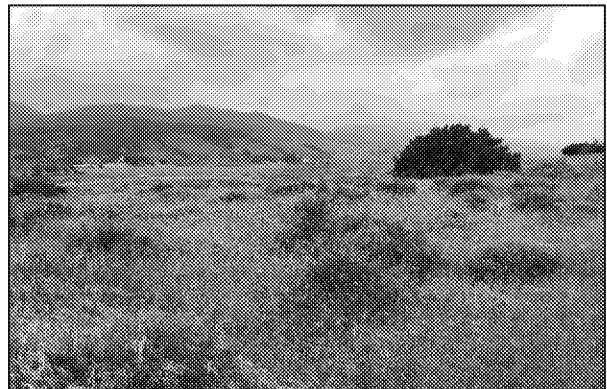

Petersen Ranch PP-1 looking south on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-1 looking west on March 9, 2016

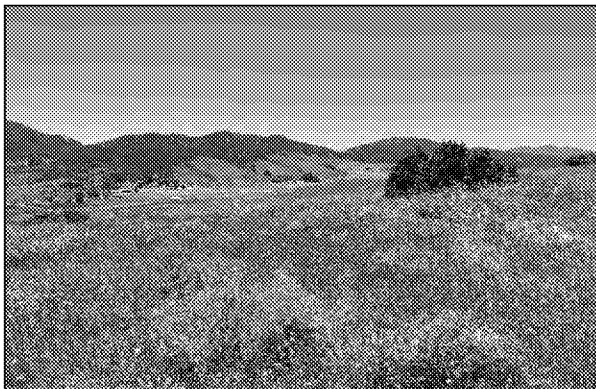

Petersen Ranch PP-1 looking west on April 13, 2017
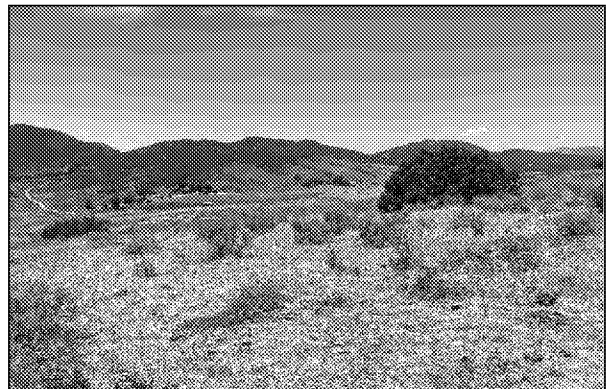

Petersen Ranch PP-1 looking west on May 17, 2018

Petersen Ranch PP-1 looking west on May 15, 2019

Petersen Ranch PP-1 looking west on May 21, 2020

Petersen Ranch PP-1 looking west on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-2 looking south on March 9, 2016

Petersen Ranch PP-2 looking south on April 13, 2017

Petersen Ranch PP-2 looking south on May 17, 2018

Petersen Ranch PP-2 looking south on May 15, 2019

Petersen Ranch PP-2 looking south on May 15, 2020

Petersen Ranch PP-2 looking south on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-2 looking southwest on March 9, 2016

Petersen Ranch PP-2 looking southwest on April 13, 2017

Petersen Ranch PP-2 looking southwest on May 17, 2018

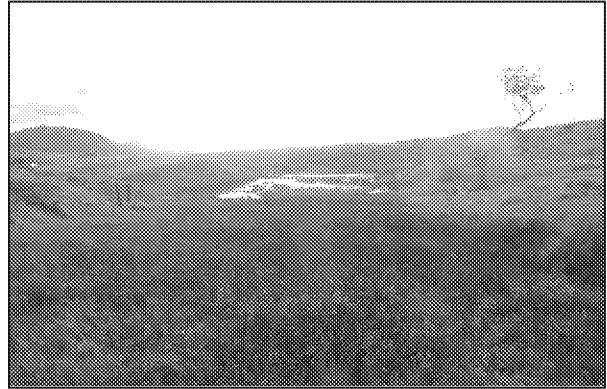Petersen Ranch PP-2 looking southwest on May 15, 2019

Petersen Ranch PP-2 looking southwest on May 15, 2020

Petersen Ranch PP-2 looking southwest on June 3, 2021

Petersen Ranch PP-3 looking northwest on March 9, 2016

Petersen Ranch PP-3 looking northwest on April 13, 2017

Petersen Ranch PP-3 looking northwest on May 17, 2018

Petersen Ranch PP-3 looking northwest on May 17, 2019

Petersen Ranch PP-3 looking northwest on May 15, 2020

Petersen Ranch PP-3 looking northwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-4 looking north-northwest on March 9, 2016

Petersen Ranch PP-4 looking north-northwest on April 13, 2017

Petersen Ranch PP-4 looking north-northwest on May 17, 2018

Petersen Ranch PP-4 looking north-northwest on May 17, 2019

Petersen Ranch PP-4 looking north-northwest on May 15, 2020

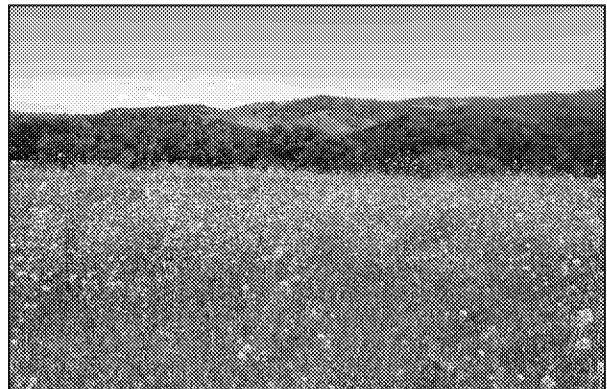Petersen Ranch PP-4 looking north-northwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-4 looking east on March 9, 2016

Petersen Ranch PP-4 looking east on April 13, 2017

Petersen Ranch PP-4 looking east on May 17, 2018

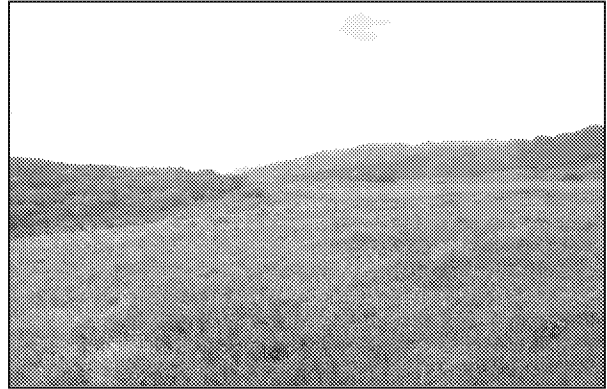Petersen Ranch PP-4 looking east on May 17, 2019

Petersen Ranch PP-4 looking east on May 15, 2020

Petersen Ranch PP-4 looking east on June 3, 2021

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Appendix C-1: Site Photopoints

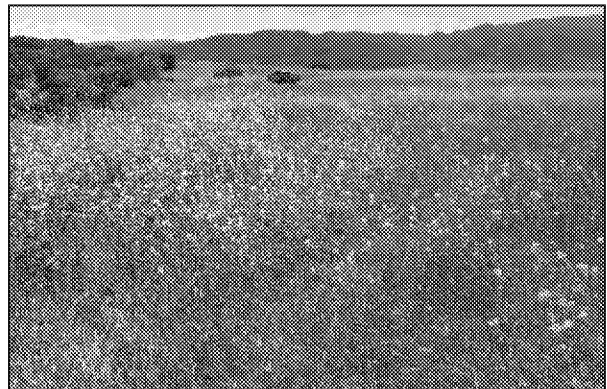**wra**
ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-4 looking southeast on March 9, 2016

Petersen Ranch PP-4 looking southeast on April 13, 2017

Petersen Ranch PP-4 looking southeast on May 17, 2018

Petersen Ranch PP-4 looking southeast on May 17, 2019

Petersen Ranch PP-4 looking southeast on May 15, 2020

Petersen Ranch PP-4 looking southeast on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

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Petersen Ranch PP-4 looking southwest on March 9, 2016

Petersen Ranch PP-4 looking southwest on April 13, 2017

Petersen Ranch PP-4 looking southwest on May 17, 2018

Petersen Ranch PP-4 looking southwest on May 17, 2019

Petersen Ranch PP-4 looking southwest on May 15, 2020

Petersen Ranch PP-4 looking southwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-5 looking southeast on March 9, 2016

Petersen Ranch PP-5 looking southeast on April 13, 2017

Petersen Ranch PP-5 looking southeast on May 17, 2018

Petersen Ranch PP-5 looking southeast on May 17, 2019

Petersen Ranch PP-5 looking southeast on May 11, 2020

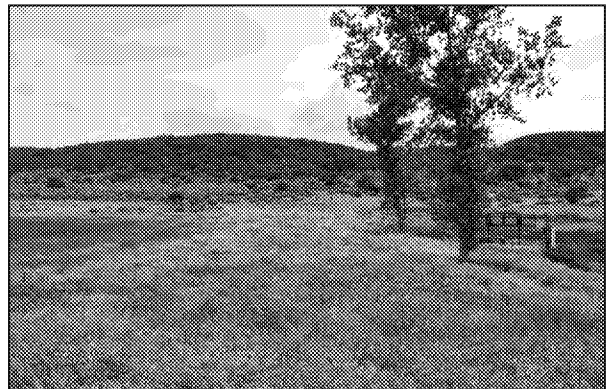Petersen Ranch PP-5 looking southeast on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

ED_013814_00002494-00306

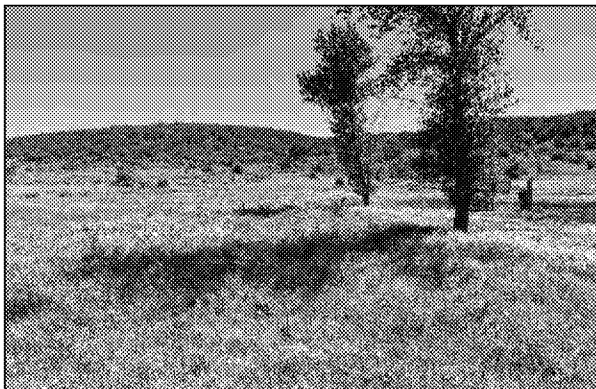Petersen Ranch PP-5 looking south on March 9, 2016

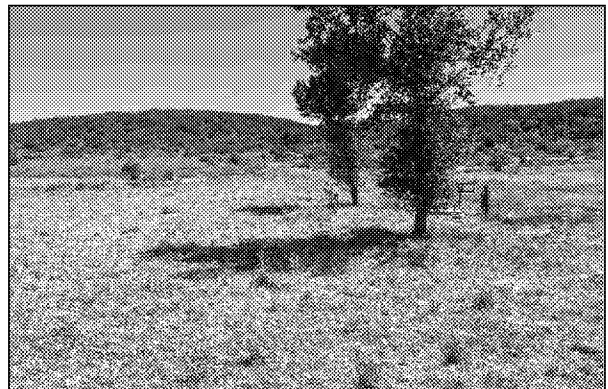Petersen Ranch PP-5 looking south on April 13, 2017

Petersen Ranch PP-5 looking south on May 17, 2018

Petersen Ranch PP-5 looking south on May 17, 2019

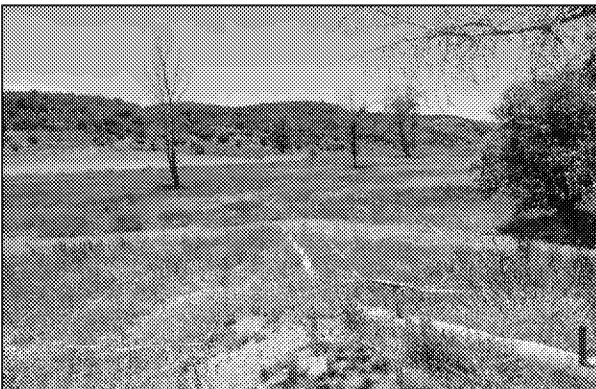Petersen Ranch PP-5 looking south on May 11, 2020

Petersen Ranch PP-5 looking south on June 3, 2021

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Appendix C-1: Site Photopoints
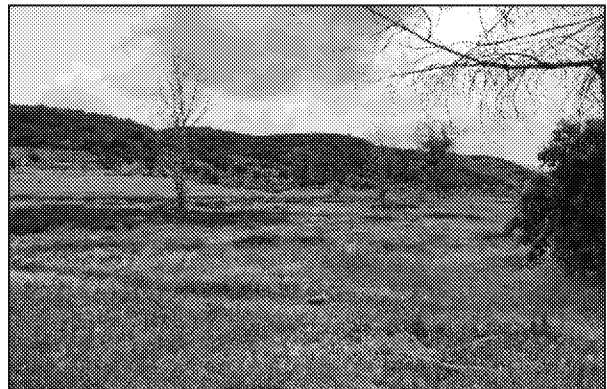
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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-5 looking southwest on March 9, 2016

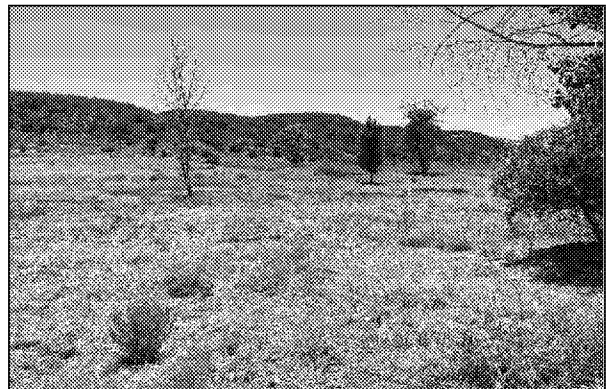Petersen Ranch PP-5 looking southwest on April 13, 2017

Petersen Ranch PP-5 looking southwest on May 17, 2018

Petersen Ranch PP-5 looking southwest on May 15, 2019

Petersen Ranch PP-5 looking southwest on May 11, 2020

Petersen Ranch PP-5 looking southwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-6 looking northwest on March 9, 2016

Petersen Ranch PP-6 looking northwest on April 13, 2017

Petersen Ranch PP-6 looking northwest on May 17, 2018

Petersen Ranch PP-6 looking northwest on May 15, 2019

Petersen Ranch PP-6 looking northwest on May 11, 2020

Petersen Ranch PP-6 looking northwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-7 looking northwest on March 9, 2016

Petersen Ranch PP-7 looking northwest on April 13, 2017

Petersen Ranch PP-7 looking northwest on May 17, 2018

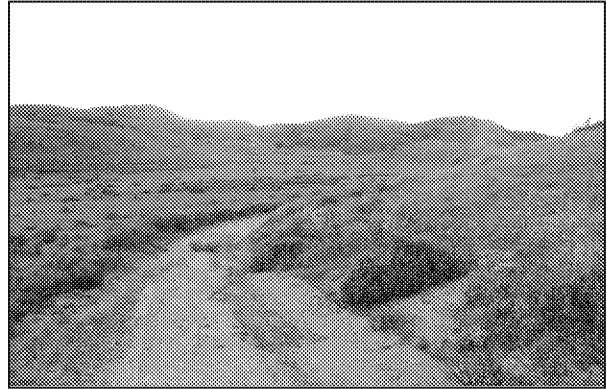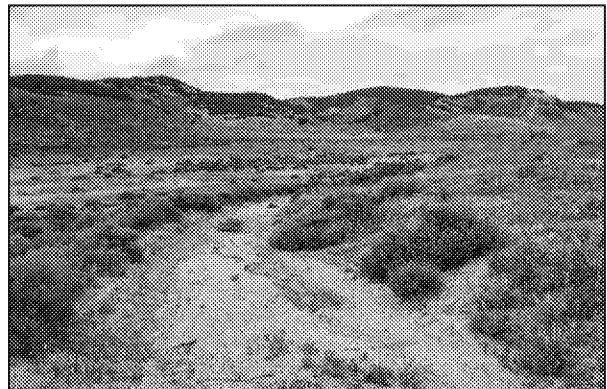Petersen Ranch PP-7 looking northwest on May 15, 2019

Petersen Ranch PP-7 looking northwest on May 15, 2020

Petersen Ranch PP-7 looking northwest on June 3, 2021

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Appendix C-1: Site Photopoints
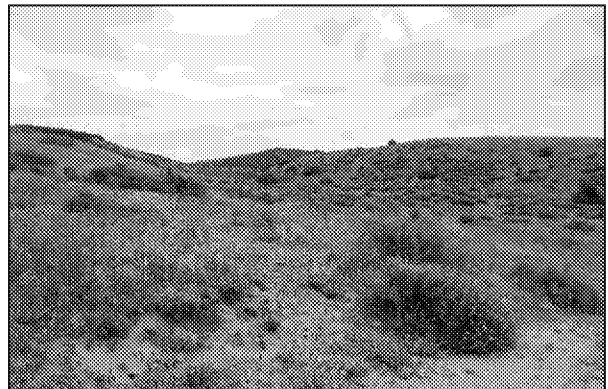
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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-7 looking east on March 9, 2016

Petersen Ranch PP-7 looking east on April 13, 2017

Petersen Ranch PP-7 looking east on May 17, 2018

Petersen Ranch PP-7 looking east on May 15, 2019

Petersen Ranch PP-7 looking east on May 15, 2020

Petersen Ranch PP-7 looking east on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-7 looking southeast on March 9, 2016

Petersen Ranch PP-7 looking southeast on April 13, 2017

Petersen Ranch PP-7 looking southeast on May 17, 2018

Petersen Ranch PP-7 looking southeast on May 15, 2019

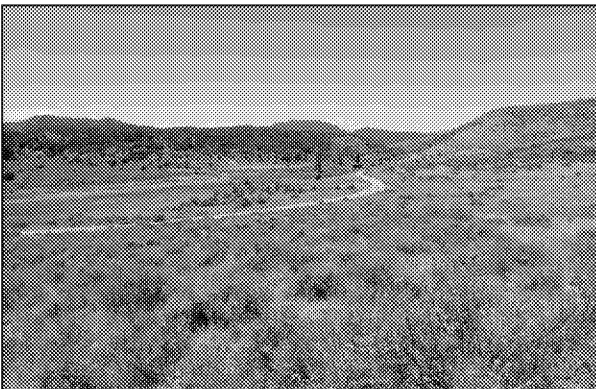Petersen Ranch PP-7 looking southeast on May 15, 2020

Petersen Ranch PP-7 looking southeast on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-7 looking west on March 9, 2016

Petersen Ranch PP-7 looking west on April 13, 2017
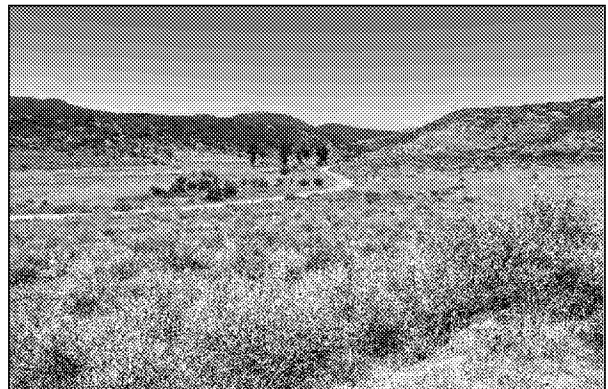

Petersen Ranch PP-7 looking west on May 17, 2018

Petersen Ranch PP-7 looking west on May 15, 2019

Petersen Ranch PP-7 looking west on May 15, 2020

Petersen Ranch PP-7 looking west on June 3, 2021

Petersen Ranch PP-8 looking east on March 9, 2016

Petersen Ranch PP-8 looking east on April 13, 2017

Petersen Ranch PP-8 looking east on May 17, 2018

Petersen Ranch PP-8 looking east on May 15, 2019

Petersen Ranch PP-8 looking east on May 11, 2020

Petersen Ranch PP-8 looking east on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS
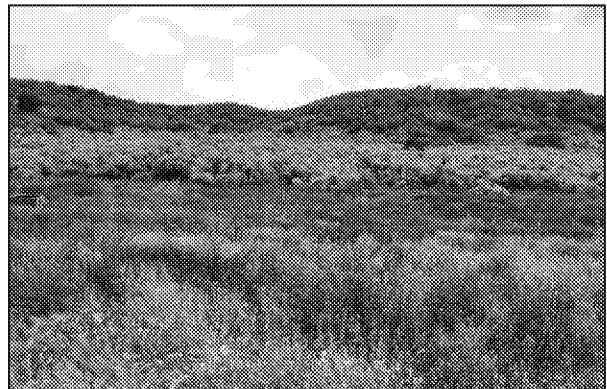
ED_013814_00002494-00314

Petersen Ranch PP-8 looking southwest on March 9, 2016

Petersen Ranch PP-8 looking southwest on April 13, 2017

Petersen Ranch PP-8 looking southwest on May 17, 2018

Petersen Ranch PP-8 looking southwest on May 15, 2019

Petersen Ranch PP-8 looking southwest on May 11, 2020

Petersen Ranch PP-8 looking southwest on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-8 looking west on March 9, 2016

Petersen Ranch PP-8 looking west on April 13, 2017

Petersen Ranch PP-8 looking west on May 17, 2018

Petersen Ranch PP-8 looking west on May 15, 2019

Petersen Ranch PP-8 looking west on May 11, 2020

Petersen Ranch PP-8 looking west on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-9 looking southeast on March 9, 2016

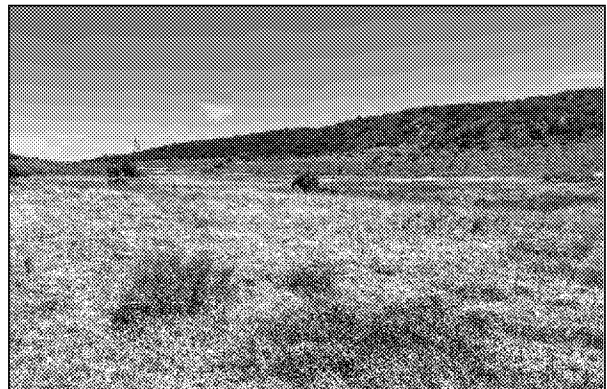Petersen Ranch PP-9 looking southeast on April 13, 2017

Petersen Ranch PP-9 looking southeast on May 17, 2018

Petersen Ranch PP-9 looking southeast on May 15, 2019

Petersen Ranch PP-9 looking southeast on May 11, 2020

Petersen Ranch PP-9 looking southeast on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS

Petersen Ranch PP-9 looking south on March 9, 2016

Petersen Ranch PP-9 looking south on April 13, 2017

Petersen Ranch PP-9 looking south on May 17, 2018

Petersen Ranch PP-9 looking south on May 15, 2019

Petersen Ranch PP-9 looking south on May 11, 2020

Petersen Ranch PP-9 looking south on June 3, 2021

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Appendix C-1: Site Photopoints

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ENVIRONMENTAL CONSULTANTS